GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

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April 09, 2014

Dear Council Member:

UNDP as the Implementing Agency for the project entitled: ***Peru: Nationally Appropriate Mitigation Actions in the Energy Generation and End-Use Sectors***, has submitted the attached proposed project document for CEO endorsement prior to final approval of the project document in accordance with UNDP procedures.

The Secretariat has reviewed the project document. It is consistent with the proposal approved by Council in June 2012 and the proposed project remains consistent with the Instrument and GEF policies and procedures. The attached explanation prepared by UNDP satisfactorily details how Council's comments and those of the STAP have been addressed. I am, therefore, endorsing the project document.

We have today posted the proposed project document on the GEF website at www.TheGEF.org. If you do not have access to the Web, you may request the local field office of UNDP or the World Bank to download the document for you. Alternatively, you may request a copy of the document from the Secretariat. If you make such a request, please confirm for us your current mailing address.

Sincerely,

Naoko Ishii
Chief Executive Officer and Chairperson

Attachment: GEFSEC Project Review Document
Copy to: Country Operational Focal Point, GEF Agencies, STAP, Trustee

REQUEST FOR CEO ENDORSEMENT

PROJECT TYPE: FULL-SIZED PROJECT
TYPE OF TRUST FUND: GEF TRUST FUND

For more information about GEF, visit TheGEF.org

PART I: PROJECT INFORMATION

Project Title: Nationally Appropriate Mitigation Actions in the Energy Generation and End-Use Sectors of Peru			
Country(ies):	Peru	GEF Project ID:[1]	4884
GEF Agency(ies):	UNDP	GEF Agency Project ID:	4679
Other Executing Partner(s):	Ministry of Energy and Mines	Submission Date:	March 03, 2014
GEF Focal Area (s):	Climate Change	Project Duration(Months)	48
Name of Parent Program (if applicable): ➢ For SFM/REDD+ ☐ ➢ For SGP ☐		Agency Fee ($):	450,000

A. FOCAL AREA STRATEGY FRAMEWORK[2]

Focal Area Objectives	Expected FA Outcomes	Expected FA Outputs	Trust Fund	Grant Amount ($)	Cofinancing ($)
CCM-3	Favorable policy and regulatory environment created for renewable energy investments Investment in renewable energy technologies increased	Renewable energy policy and regulation in place Renewable energy capacity installed	GEF TF	2,530,000	25,470,000
CCM-6	Adequate resources allocated to support enabling activities under the Convention Human and institutional capacity of recipient countries strengthened	Countries receiving GEF support for national communication, etc. National communications, etc. completed and submitted to the UNFCCC as appropriate	GEF TF	1,970,000	6,540,000
		Total project costs		4,500,000	32,010,000

B. PROJECT FRAMEWORK

Project Objective: To support the Government of Peru in the development and implementation of Nationally Appropriate Mitigation Actions in the energy sector

Project Component	Grant Type	Expected Outcomes	Expected Outputs	Trust Fund	Grant Amount ($)	Confirmed Cofinancing ($)
Business-as-usual GHG emission baseline	TA	Established national and regional GHG emission BAU reference baseline for the energy	1. Established and operational national and sub-national GHG inventory system for the energy sector, integrated with the InformaGEI platform. 2. Established national and sub-national GHG inventories for the	GEF TF	290,000	1,390,000

[1] Project ID number will be assigned by GEFSEC.
[2] Refer to the Focal Area/LDCF/SCCF Results Framework when completing Table A.

		sector	energy sector. 3. Defined and established national and regional GHG emissions BAU reference baselines for the energy generation and end-use sectors and sub sectors. 4. Established Grid Emission factor, including a regular update system, and standardized baseline for off-grid power generation			
Mitigation options for the energy generation and end-use sectors	TA	Prioritized mitigation options and MACCs are identified, NAMA Design Documents are developed in the selected sub-sectors(new renewable energy sources both connected and non-connected to the grid and energy efficiency), and at 4 NAMA activities are ready for implementation.	1. Developed and published energy marginal abatement cost curve (MAC curve) identifying cost effective mitigation actions at the energy generation and end-use sectors and sub sectors, and detailed marginal abatement cost curves (MAC curves) for mitigation actions in the selected sub-sectors[3] 2. Completed factsheets for potential NAMAs in the energy generation and end-use sectors and sub sectors. 3. Identified and prioritized mitigation options to develop and implement NAMAs for the selected sub-sectors, based on the MAC curves, MCA, barriers and co-benefits analysis. 4. Completed comprehensive barrier analysis for mitigation options identified for the selected sub-sectors. 5. Comprehensive sustainable development and climate resilience impact (co-benefits) analysis for mitigation options identified for the selected sub-sectors. 6. Fully capable and qualified entities in the private and public sectors for the design of and implementation of GHG emission mitigation programme,. 7. Established and validated national voluntary emission reduction targets for the selected NAMAS.	GEF TF	590,000	1,650,000

[3] All mentions of the "selected subsectors" refer to the two sub sectors chosen during the project preparation phase as the focus of this project. They are (i)renewable energy connected to the grid (all technologies excluding large hydro), (ii) off grid renewable energy. At the time of CEO Endorsement, the Government of Peru has requested that residential energy efficiency also be considered a third priority for the project and is therefore included as a potential NAMA. The design will be supported via this project, while implementation is expected to be supported via the ongoing GEF Standards and Labels and Efficient Lighting initiatives.

			8. Defined NAMA Entity, including fully capable and qualified entities in the private and public sectors for the implementation of GHG emission mitigation actions, as well as an operational and financial scheme for the selected NAMAs. 9. Designed NAMAs for implementation of mitigation actions in the selected sub-sectors.			
Implementation of NAMAs in the selected sub-sectors	TA/ INV	Entities related to renewable energy connected to the grid (all technologies excluding large hydro) off grid renewable energy, and energy efficiency sub-sectors are implementing prioritized NAMAs in a piloting phase and contributing to the achievement of Peru's voluntary mitigation target	1. Developed and enforced national action plans for the implementation of each selected prioritized NAMA in the selected sub-sectors. 2. Established and operational multi-sectoral policy dialogues on potential instruments for the implementation of prioritized NAMAs. 3. Defined and approved financial architecture for each NAMA based on a balance mix of policy and/or financial tools to support the implementation of the prioritized NAMAs, including fiscal incentives, feed in tariffs, concessional credits, guarantee facility or other options. 4. Established and operational Institutional arrangement and NAMA set-up, considering coordination mechanisms between MEF, MINAM and MEM and selected stakeholders. 5. Established public/private partnerships for the implementation of prioritized NAMAs. 6. Established and operational mechanisms for the implementation of prioritized NAMAs for the selected sub-sectors 7. NAMA piloting phase under implementation the selected sub sectors 8. A performance based payment mechanism is implemented for off grid PV system deployment 9. MRV mechanisms are implemented for the 4 pilot NAMAs 10. Analyzed, published and	GEF TF	TA - 1,080,000 INV - 1,450,000	TA – 5,470,000 INV – 20,000,000

			disseminated lessons learned from the detail design and piloting of the prioritized NAMAs.			
MRV system and national registry for mitigation actions in the energy generation and end-use sector	TA	Accurate mechanism for measurement and accounting of actual GHG emission reductions from mitigation actions in the energy generation and end-use sector are in place.	1. Established and operational coordination mechanism between the MEF, MINAM and MEM, integrated to the InformaGEI for emission reduction accounting in the energy sector. 2. Defined key monitoring parameters (quantitative and qualitative) for the selected NAMAs, with focus on GHG emission reduction and sustainable development co-benefits. 3. Designed MRV systems for the selected NAMAs, including institutional arrangements, MRV Committees, and monitoring plans. 4. Developed National MRV guidelines and standard methodologies for the selected NAMAs. 5. Climate change indicators incorporated into Ministry of Finance's Results Based Budgeting Program 6. Fully capable and qualified local technical professionals for the implementation of MRV. 7. Established and operational national registry mechanism for mitigation actions.	GEF TF	890,000	2,500,000
				Subtotal		4,300,000	31,010,000
				Project management Cost (PMC)[4]	GEF TF	200,000	1,000,000
				Total project costs		4,500,000	32,010,000

[4] PMC should be charged proportionately to focal areas based on focal area project grant amount in Table D below.

C. SOURCES OF CONFIRMED COFINANCING FOR THE PROJECT BY SOURCE AND BY NAME ($)

Please include letters confirming cofinancing for the project with this form

Sources of Co-financing	Name of Co-financier (source)	Type of Cofinancing	Cofinancing Amount ($)
National Government	Ministry of Energy and Mines	Grant	20,000,000
National Government	Ministry of Energy and Mines	In Kind	800,000
National Government	Ministry of Economy and Finance	Grant	9,350,000
National Government	Ministry of Environment	Grant	600,000
National Government	Ministry of Environment	In Kind	200,000
GEF Agency	UNDP	Grant	1,000,000
GEF Agency	UNDP	In Kind	60,000
Total Co-financing			32,010,000

D. TRUST FUND RESOURCES REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY[1]

GEF Agency	Type of Trust Fund	Focal Area	Country Name/ Global	(in $)		
				Grant Amount (a)	Agency Fee (b)[2]	Total c=a+b
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
Total Grant Resources				0	0	0

[1] In case of a single focal area, single country, single GEF Agency project, and single trust fund project, no need to provide information for this table. PMC amount from Table B should be included proportionately to the focal area amount in this table.

[2] Indicate fees related to this project.

F. CONSULTANTS WORKING FOR TECHNICAL ASSISTANCE COMPONENTS:

Component	Grant Amount ($)	Cofinancing ($)	Project Total ($)
International Consultants	1,160,000	2,000,000	3,160,000
National/Local Consultants	1,360,000	6,000,000	7,360,000

G. DOES THE PROJECT INCLUDE A "NON-GRANT" INSTRUMENT? No

(If non-grant instruments are used, provide in Annex D an indicative calendar of expected reflows to your Agency and to the GEF/LDCF/SCCF/NPIF Trust Fund).

PART II: PROJECT JUSTIFICATION

A. DESCRIBE ANY CHANGES IN ALIGNMENT WITH THE PROJECT DESIGN OF THE ORIGINAL PIF[5]

A.1 National strategies and plans or reports and assessments under relevant conventions, if applicable, i.e. NAPAS, NBSAPs, national communications, TNAs, NCSA, NIPs, PRSPs, NPFE, Biennial Update Reports, etc.

N/A

A.2. GEF focal area and/or fund(s) strategies, eligibility criteria and priorities.

There is a change from the original distribution of resources across GEF Focal Area Objectives. At the PIF stage, the project was presented as accessing funding from CCM-2, CCM-3 and CCM-6. During the project preparation phase, a priority setting exercise was conducted to identify the most relevant sub-sectors within the energy generation and end use sector for the implementation of NAMAs. A description of the priority setting process can be found in Annex 7.5 of the UNDP Project Document. As a result of this process, the project will focus its NAMA implementation efforts in the following two sub-sectors (i) renewable energy connected to the grid (all technologies excluding large hydro) and (ii) off grid renewable energy. Energy efficiency options will be fully assessed in Component 2 of the project, and will also be considered for implementation support in coordination with the ongoing GEF Standards and Labels and Efficient Lighting initiatives.

Project Components 1, 2, and 4, remain focused on supporting the broad energy generation and end use sector. Given that these components focus primarily on establishing baseline scenarios, identifying and designing NAMAs, and designing MRV systems, the corresponding budget of these components is allocated to CCM-6. Component 3 of the project is dedicated fully to NAMA implementation in the above mentioned renewable energy sub-sectors; therefore the budget for this component is allocated to CCM-3. Based on the results of Component 2, there is a possibility that some resources may be allocated to support an additional NAMA in energy efficiency. Should this occur, the GEF will be notified accordingly during project implementation. At this time, however, it is expected that the implementation of energy efficiency NAMAs will be supported through the ongoing GEF Standards and Labels and Lighting projects.

A.3 The GEF Agency's comparative advantage:

N/A

A.4. The baseline project and the problem that it seeks to address:

The rationale of the baseline project to be supported by the GEF remains the same the original PIF. The Government of Peru has presented voluntary mitigation targets to the UNFCCC, and is in the process of designing and implementing Nationally Appropriate Mitigation Actions (NAMAs) that support the achievement of these targets. The project baseline consists of the ongoing and planned activities by the Government of Peru to structure a NAMA enabling environment and governance framework as well as the planned programs and activities that will contribute to meeting its energy sector targets.

The baseline project has been refined and updated to reflect the current NAMA design and implementation status in Peru. As this consists of a number of domestic and internationally funded programs and activities, the Project Document reflects the latest status of these initiatives and their expected contribution to the GEF project. Furthermore, the baseline has been strengthened to reflect relevant ongoing and programmed activities that will support NAMA implementation in the two selected sub-sectors (renewable energy connected to the grid, excluding large hydro, and off grid renewable energy).

The baseline co-financing has been modified to reflect the current sources of co-financing available to the project. Co-financing is now presented by the three main government entities appropriating and administering the funds associated to NAMAs (Ministry of Environment, Ministry of Energy and Mines, and Ministry of Economy and Finance). This allows for more efficient coordination, since the project will work jointly with these three entities, which are directly involved in programme execution and in some cases administering multiple sources of funds associated to the project.

[5] For questions A.1 –A.7 in Part II, if there are no changes since PIF and if not specifically requested in the review sheet at PIF stage, then no need to respond, please enter "NA" after the respective question

A. 5. Incremental /Additional cost reasoning: describe the incremental (GEF Trust Fund/NPIF) or additional (LDCF/SCCF) activities requested for GEF/LDCF/SCCF/NPIF financing and the associated global environmental benefits (GEF Trust Fund) or associated adaptation benefits (LDCF/SCCF) to be delivered by the project:

The incremental reasoning for the GEF project remains the same to the approved PIF. The project builds upon the Government of Peru´s willingness to establish and meet voluntary targets, establishing an enabling framework for the design and implementation of energy sector NAMAs and directly supporting the implementation of 4 NAMA activities. Likewise, the four project components remain the same. As a result of the findings in the project preparation phase and the focus on the NAMA implementation component on two sub sectors, the definition of outcomes and outputs has been refined and updated. The main changes are reflected below.

Component 1 – Business as usual GHG emissions baseline.

This component remains virtually the same. The links to the national GHG inventory system (InformaGEI) have been strengthened. Two additional activities have been included; the development of a system to continuously update the Grid Emission Factor and the establishment of standardized baselines for off grid power generation.

Component 2 – Mitigation options for the energy generation and end use sectors.

The Outcome definition has been refined to focus entirely on identification of mitigation options and NAMA design. This creates a clear boundary between NAMA design (Component 2) and NAMA implementation (component 3), as opposed to the PIF structure, which contained overlaps between these components. Component 2 performs a sector wide assessment of energy generation and end use to prioritize mitigation activities, based on mitigation potential, cost effectiveness, and the national development context. Potential NAMAs will be identified and a portfolio of NAMA fact sheets will be developed. A more refined assessment of the off grid and on grid renewable energy sub-sectors, as well as residential energy efficiency, will be conducted, to identify specific NAMA activities, four of which will be selected for piloting with project support. Detailed NAMA designs will be developed for the 4 selected activities, including identification of financing and institutional arrangements.

Component 3 – Implementation of NAMAs in the selected sub sectors.

The Outcome definition has been refined to specify that the NAMA activities to be implemented will be in the grid connected and off grid renewable energy sub-sectors, and potentially in residential energy efficiency. At least one NAMA will be implemented in each sub-sector, and one NAMA activity has been pre-selected during the project design phase. This will be focused on off grid electrification with PV systems, building upon a rural electrification process currently planned by the Government of Peru. Details can be found in the corresponding Outcome description in the Project Document.

Furthermore, the scope for the use of the GEF funds targeted for investment has been refined, based on the sub-sectoral assessment conducted during the project preparation phase. These funds will be targeted to the establishment of reliable and independent MRV mechanisms for the off grid rural electrification NAMAs. This investment will address a consistent weakness in the implementation of off grid renewable energy programs, which is the monitoring of proper equipment performance so that the real abatement impact of the program can be tracked. The investment, installation, operation, and maintenance of the renewable energy equipment is financed through a public/private partnership, including a performance based payment structure to disburse government funds (whose design will be supported by GEF). The GEF investment will track the proper operation and use of the off grid systems, and will accurately translate the program's actual results into reliable GHG emission reduction measurements. This investment will support the Government of Peru in two crucial functions; (a) ensuring that the beneficiaries of subsidized off grid electricity program receive a good quality energy service, and (b) strengthening the link between its off grid renewable program and the quantification and reporting of GHG emission reductions, which contribute to the country's national targets.

Component 4 - MRV system and national registry for mitigation actions in the energy generation and end-use sector

This component remains virtually unchanged. An energy sector MRV registry will be established, including coordination mechanisms between the key stakeholders. The MRV systems for the 4 selected NAMAs will be designed in detail and will be ready for implementation (the MRV systems will be implemented in Component 3). An important additional activity is the incorporation of climate change mitigation indicators in the Ministry of Economy and Finance's Results Based Budgeting program, which will mainstream mitigation activities where appropriate in the Government's budgeting process.

GHG Emission Reduction calculation – This calculation has been refined and updated, as explained in Section 2.4 of the Project Document and corresponding calculation (Annex 7.3). Direct CO_2 emission reductions resulting from the project are estimated to be 962,000 tons of CO2. Indirect CO_2 emission reductions are estimated at 1,600,000 tons of CO_2.

A.6 Risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and measures that address these risks:

N/A

A.7. Coordination with other relevant GEF financed initiatives

At the time of CEO Endorsement the Government of Peru has requested that the project help identify potential NAMA activities in the residential energy efficiency sector. Component 2 of the project includes a thorough assessment of the energy efficiency sector and will therefore respond to this demand. It is expected that the implementation of these NAMAs will be incorporated into the work plans of the ongoing UNDP/ GEF "Energy Efficiency Standards and Labels" and UNEP/GEF "Lighting Market Transformation" projects. The present project will build upon these initiatives and create an appropriate NAMA framework to strengthen their execution. This will require close coordination amongst the three projects. The Government of Peru's decision to make MINEM the Executing Agency for the current project strengthens this coordination, as all three projects will be housed within the same institution.

B. ADDITIONAL INFORMATION NOT ADDRESSED AT PIF STAGE:

B.1 Describe how the stakeholders will be engaged in project implementation.

The development of Nationally Appropriate Mitigation Actions in Peru consists of the identification and implementation of suitable national mitigation options that have strong linkages with national and sectorial development goals and strategies. The appropriate involvement of stakeholders at all relevant levels and sectors is vital in order to ensure the ownership and strength of these processes. The process followed to develop and implement NAMAs will involve numerous stakeholders and actors throughout each stage.

The key Government partners in this initiative are (a) the Ministry of Environment, responsible for leading the NAMA development process and monitoring progress towards reaching the country's voluntary targets, (b) the Ministry of Energy, responsible for the establishment and implementation of the Peru's energy policy and energy generation, distribution, and end use programs, and (c) the Ministry of Economy and Finance, responsible for national budgetary planning and disbursement, and the incorporation of climate change mitigation criteria into national economic policy. These three partners are embedded into the project design as they form part of the Project Steering Committee. Furthermore, all NAMA design activities in Peru associated to this project and providing co-financing are executed by one of these three partners, ensuring close coordination amongst the programmes to develop synergies and make a joint contribution to the fulfillment of Peru's voluntary targets.

The NAMA design initiatives listed in the baseline section of the Project Document all contain numerous opportunities for consultations, reaching out to stakeholders at the national and regional levels. In addition to its own stakeholder consultation budget, the project will coordinate closely with these initiatives (and other NAMA related activities likely to arise during project execution) to ensure that a common agenda is established. This agenda should be comprehensive enough to reach out and include all necessary stakeholders, but should avoid the duplication which has characterized the NAMA consultation process to date. Joint events will be held whenever possible, gathering key stakeholders to discuss a common national NAMA agenda, rather than solely to serve the consultation needs of each specific program. With respect to energy related issues, the GEF project is clearly understood by all stakeholders in Peru to be the lead program in this field and will therefore take the initiative in holding consultations with energy sector stakeholders, under the coordination and cooperation scheme described above.

The design and implementation of NAMAs in the on and off grid energy generation sub sectors will require the engagement of a broad set of actors, both at the national, regional, and local levels. The project will hire two long term consultants, each one with technical expertise in the selected sub-sector, to lead the project activities and stakeholder engagement process throughout the project lifetime. The implementation of NAMAs will require the

involvement of funding source representatives, administering agencies, private sector actors, and end users, so it will be important to ensure a consistent presence throughout the project of this technical personnel which will be the key project counterpart for all activities at the sub-sectoral level.

The project will also engage a specialized consultancy firm to support private sector engagement and the development of public/private partnerships, which is a priority for the Government of Peru and is embedded in its energy development strategy. This will support the Ministry of Energy and Mines in developing mechanisms to disburse public subsidies, when necessary, in an efficient means, avoiding the creation of unintended secondary effects and ensuring that the correct incentives are in place to achieve the desired results.

The project will also need to be influential at the policy-making level in order to impact existing policies and secure the approval of new legislation or regulation, as necessary. This is particularly important in the on-grid renewable energy sub-sector, where the implementation of NAMAs will likely require the establishment or refinement of policy and finance instruments that stimulate investment in renewable energy. For this purpose, the project's policy recommendations will be issued at the steering committee level and will therefore require the engagement and approval of the three key ministries involved in this project. The enactment of policy and regulation will require similar high level support. Where appropriate, the project will establish a common policy agenda with other NAMA related activities to achieve common goals. This could include the formalization of an MRV registry system, the establishment of a stable budget for the national GHG inventory system (InformaGEI), and the incorporation of climate change indicators into the national Results Based Budgeting program, amongst others.

B.2 Describe the socioeconomic benefits to be delivered by the Project at the national and local levels, including consideration of gender dimensions, and how these will support the achievement of global environment benefits (GEF Trust Fund/NPIF) or adaptation benefits (LDCF/SCCF):

The voluntary nature of NAMA development and implementation ensures that the Government of Peru will seek to implement mitigation measures that have a clear positive impact on the national economy and are fully aligned with national sustainable development goals. As such, the project is embedded in a context in which the delivery of national socioeconomic benefits such as social inclusion, improvement of the country's competitiveness and energy independency are equally important to the country's contribution to GHG Emission Reductions.

The identification of cost effective mitigation measures, and their implementation as NAMAs will provide a clear demonstration of effective mechanisms to integrate national sustainable development and greenhouse gas mitigation goals. Furthermore, this project forms part of Peru's ongoing process of defining a Green, Low Emission, Climate Resilient Development strategy, which is a broader process to develop a sustainable, climate- smart development path for the country.

The selection of the on grid and off grid renewable energy sub-sectors for the implementation of NAMAs incorporated a series of metrics that combined national development priorities with global environmental benefits. In the off grid sub sector, the project will develop a firm and clear link between the social agenda, in particular targeted towards isolated rural communities, and the climate change agenda. It is well known that the provision of off grid energy is highly beneficial to impoverished communities, contributing to the improvement of communications, increasing productivity (both by providing lighting at night and reducing the time spent procuring energy), and having strong impacts on health and education. The positive impact for women and children is well documented, as women are often responsible for the household and the care of children, and are therefore directly benefitted by the provision of energy services. Likewise, there are numerous examples of decentralized renewable energy services triggering small and medium sized enterprises for the delivery of goods and services, thus creating the potential for income generation and poverty eradication. While the link between off grid renewables, social benefits, and greenhouse gas abatement is not new, this has usually been done on a project by project basis. The NAMA framework offers an opportunity to institutionalize these links and develop medium and long term programs that maximize the synergies between addressing social issues and poverty eradication at a local level and the global commitment to reduce greenhouse gas emissions.

The selection of on grid renewable energy for NAMA implementation also delivers socioeconomic benefits that are applicable at the macroeconomic level. This is related to the country's long term energy planning and competitiveness in the energy sector. While the exploitation of natural gas fields has significantly impacted the domestic energy matrix, the country continues to have a vast potential of domestic renewable energy resources which can be exploited for the benefit of the country. In a country with a historically weak electricity transmission system, the need to decentralize electricity generation and shift towards local generation and distribution models has always been acknowledged but never fully addressed. Coordination between the agriculture sector and energy sector is weak, resulting in the unused opportunities for generation of energy with biomass. Market distortions favoring the generation of natural gas (through the subsidies for gas distribution infrastructure) affect the competitiveness of renewable energies. In this context, despite the Government's statements and actions supporting the development of grid connected renewables, there are still numerous barriers to surmount in order to create a competitive environment. This ultimately affects the national economy, as the energy generation and distribution system is not fully efficient, and is therefore generating additional costs to the public purse and end users. Strengthening the country's capacity to economically develop renewable energy resources will impact the country's competitiveness and contribute to improved conditions for socioeconomic growth.

Finally, the project will also conduct an in depth assessment to identify a potential NAMA in the residential energy efficiency sector. This will highlight the positive reinforcement between energy efficiency and decreased household expenditures on electricity, which is a significant cost, in particular for low income peri-urban citizens.

The project will fully incorporate the gender dimension in the NAMA design and implementation process, ensuring gender equality in stakeholder consultations, project implementation arrangements and project procurement and recruitment processes. The project will also ensure that specific gender analyses are undertaken as part of NAMA design, in particular for energy topics that are highly sensitive gender sensitive, such as energy access, as mentioned above.

The use of tools as Marginal Abatement Cost Curves, Barrier analysis and Local Benefits analysis will generate an approach deemed to cost-effectiveness and to ensure sustainable results, not only based on GHG emission reductions but also on national development goals. The use of indicators that can be aligned with the Result Based Budgeting programme of the Peruvian Government, will also assure that the uptake and deployment of the NAMA can be measured not only against climate-related benefits, but also against the national, social and economic co-benefits.

B.3. Explain how cost-effectiveness is reflected in the project design:

Cost-effectiveness is embedded into the project design, as the NAMA design process will identify the most cost effective means to achieve GHG emission reductions within the national development context. One of the main benefits of setting sector level targets is that it allows countries to perform a full analysis on their mitigation options to identify the most convenient and efficient abatement measures. The GEF will support this process by strengthening this assessment, developing sectoral and sub sectoral MAC Curves and conducting detailed barrier analysis and local benefits analysis. The mitigation measures identified by the project and the NAMAs selected for implementation will result from a comprehensive process that ensures cost-effectiveness.

An additional measure that promotes cost effectiveness is the design and implementation of MRV mechanisms within the project. A solid MRV structure will allow for the clear monitoring of project results, and therefore allows for the clear assessment of the benefits obtained for a particular investment. As described above, the establishment of NAMAs is likely to combine investments and contributions targeted towards multiple benefits, integrating local and national socioeconomic priorities with climate change mitigation measures. To ensure cost effectiveness of all fronts, MRV systems must be set up to measure and report on all benefits, thus ensuring that investments generate the desired results for all parties involves. This is clearly beneficial for parties contributing to NAMAs for GHG abatement purposes, as the higher the national and local co-benefits, the higher the incentives for national investment for socio economic development and the lower the mitigation increment. This principle is clearly demonstrated in the NAMA activity that has been pre-selected for implementation, in which the investment in PV systems is entirely national and driven by a social development agenda, but the marginal GEF contribution allows for the effective delivery of verifiable GHG emission reductions through the support for an MRV structure.

This project will also seek to be cost effective by supporting the implementation of policy and financial instruments that create a favorable enabling environment for investment in renewable energy. The UNDP Derisking Renewable Energy Investment framework[6] will be applied for the grid connected renewable energy sub sectoral analysis, in order to define a specific policy framework applicable to Peru. Likewise, the project will work with the Ministry of Finance to incorporate climate change mitigation metrics in the country's results based budgeting program, which is a powerful tool for measuring cost effectiveness. The project's policy recommendations will be validated by the Project Steering Committee, which involves the three main actors at the governmental level (MEF, MINEM and MINAM). This mainstreaming effort is essential to support the development and approval of the required laws and regulations which will support the implementation of grid connected renewable energy NAMAs. Where appropriate, the project will join efforts with similar NAMA design efforts and create a common policy agenda to be carried forward by the main government institutions. Finally, the project will coordinate closely with the ongoing Partnership for Market Readiness and Domestic Carbon Market initiatives, and will support the implementation of the financial incentive mechanisms piloted by these initiatives by ensuring the proper implementation of MRV in the implemented NAMAs.

The project approach is ambitious, working to influence both the high level policy and local implementation levels, and addressing both NAMA design and implementation. The GEF project is part of a broader set of initiatives, both for NAMA design and implementation that result in a sustained effort by the national government and the international community to establish a long term NAMA framework. This will be the ultimate measure of success for the project, and will create the conditions for sustained climate change mitigation action in Peru. The NAMA concept is conceived to mainstream climate change mitigation into national development processes, clearly emphasizing cost effectiveness as a primary tool to evaluate and incorporate mitigation options.

C. DESCRIBE THE BUDGETED M &E PLAN:

Type of M&E activity	Responsible Parties	Budget US$ (excluding project team and UNDP staff time)	Time frame
Inception Workshop (IW) and Report	▪ Project Manager ▪ UNDP Peru ▪ UNDP-GEF Regional Technical Advisor (RTA)	5,000	Within first two-three months of project start up
Measurement of Means of Verification for Project Purpose Indicators: GHG emission monitoring (baseline and results) in-line with GEF/STAF methodology	▪ UNDP-GEF RTA ▪ Project Manager ▪ GHG monitoring expert	10,000	Start, mid and end of project
Measurement of Means of Verification for Project Progress and Performance (measured on an annual basis)	▪ Oversight by Project UNDP-GEF RTA and Project Manager ▪ Project Team	None	Annually prior to APR/PIR
APR/ PIR	▪ Project Manager and Team ▪ UNDP Peru ▪ UNDP-GEF RTA	None	Annually
Project Board Meetings	▪ Project Coordinator ▪ UNDP Peru	None	Following Project IW and subsequently at least once a year
Periodic status reports	▪ Project Manager and team	None	Quarterly
Mid-term Review	▪ Project Manager ▪ UNDP Peru	20,000	At the mid-point of project

[6] www.undp.org/drei

	▪ UNDP-GEF RTA ▪ External Consultants		implementation.
Final External Evaluation	▪ Project Manager ▪ UNDP Peru ▪ UNDP-GEF RTA	20,000	At least three months before the end of project implementation
Terminal Lessons Learnt Report	▪ Project Manager ▪ UNDP Peru ▪ National Experts ▪ External Consultants	None	At least one month before the end of the project
Audit	▪ UNDP Peru ▪ Project Manager and team	12,000 ($3,000 average per year)	Annually
Visits to field sites (UNDP staff travel costs to be charged to IA fees)	▪ UNDP Peru ▪ UNDP-GEF Regional Coordinating Unit (as appropriate) ▪ Government representatives	For GEF supported projects, paid from IA fees and operational budget	Annually
TOTAL indicative COST Excluding project team staff time and UNDP staff and travel expenses		US$ 67,000	

In accordance with the programming policies and procedures outlined in the UNDP User Guide, the project will be monitored through the following:

Within the annual cycle

(i) On a quarterly basis, a quality assessment shall record progress towards the completion of key results, based on quality criteria and methods captured in the Quality Management table below.

(ii) An Issue Log shall be activated in Atlas and updated by the TL to facilitate tracking and resolution of potential problems or requests for change.

(iii) Based on the initial risk analysis submitted, a risk log shall be activated in Atlas and regularly updated by reviewing the external environment that may affect the project implementation.

(iv) Based on the above information recorded in Atlas, a Quarterly Progress Reports (QPR) shall be submitted by the TL to the PB through Project Assurance, using the standard report format available in the Executive Snapshot.

(v) Project Lesson-learned log shall be activated and regularly updated to ensure on-going learning and adaptation within the organization, and to facilitate the preparation of the Lessons-learned Report at the end of the project.

(vi) Monitoring Schedule Plan shall be activated in Atlas and updated to track key management actions/events.

Annually

(i) *Annual Review Report.* An Annual Review Report shall be prepared by the TL and shared with the PB and the Outcome Board. As minimum requirement, the Annual Review Report shall consist of the Atlas standard format for the QPR covering the whole year with updated information for each above element of the QPR as well as a summary of results achieved against pre-defined annual targets at the output level.

(ii) *Annual Project Review.* Based on the annual report, an annual project review shall be conducted during the fourth quarter of the year or soon after, to assess the performance of the project and appraise the Annual Work Plan (AWP) for the following year. In the last year, this review will be a final assessment. This review is driven by the PB and may involve other stakeholders as required. It shall focus on the extent to which progress is being made towards outputs, and that these remain aligned to appropriate outcomes.

Project Inception Phase

Monitoring and Evaluation (M&E) of the project will follow the UNDP Program Manual and GEF M&E procedures and will be conducted by the project team and the UNDP Country Office (UNDP-CO) with support from UNDP-GEF Regional Coordination Unit in Panama.

The M&E plan includes the following documents and activities: inception report, project implementation reviews, quarterly operational reports, a mid-term review and final evaluation. The M&E budget is provided in the table below. An M&E plan will be finalized at the Project Inception Meeting following a collective fine-tuning of indicators, means of verification, and the full definition of project staff M&E responsibilities.

A Project Inception Workshop (IW) will be conducted with the full project team, relevant government and municipal counterparts, co-financing partners, the UNDP-CO and representation from the UNDP-GEF Regional Coordinating Unit. A fundamental objective of this Inception Workshop will be to assist the project team to understand and take ownership of the project's goal, objective and outcomes, as well as finalize preparation of the project's first annual work plan on the basis of the project's log frame matrix. This will include reviewing the logframe (indicators, means of verification, assumptions), imparting additional detail as needed, and on the basis of this exercise finalize the Annual Work Plan (AWP) with precise and measurable performance indicators, and in a manner consistent with the expected outcomes for the project. Additionally the purpose and objective of the Inception Workshop (IW) will be to: (i) introduce project staff with the UNDP-GEF expanded team which will support the project during its implementation, namely the CO and responsible Regional Coordinating Unit staff; (ii) detail the roles, support services and complementary responsibilities of UNDP-CO and RCU staff vis à vis the project team; (iii) provide a detailed overview of UNDP-GEF reporting and monitoring and evaluation (M&E) requirements, with particular emphasis on the harmonized Annual Project Implementation Reviews (PIRs)/Annual Project Report (APR), PB meetings, as well as mid-term review and final evaluation. Equally, the IW will provide an opportunity to inform the project team on UNDP project related budgetary planning, budget reviews, and mandatory budget review. The IW will also provide an opportunity for all parties to understand their roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff and decision-making structures will be discussed again, as needed, in order to clarify for all, each party's responsibilities during the project's implementation phase.

Monitoring responsibilities and events

The day-to-day monitoring of implementation progress will be the responsibility of the TL, whose work will be based on the project's annual work plan and its indicators. Annual monitoring will be carried out by the PB, including Government, UNDP, and key beneficiaries of the project, which is the highest policy-level meeting of the parties directly involved in the implementation of a project. The first such meeting will be held within the first twelve months following the inception workshop. A detailed schedule of PB meetings to review project progress will be developed by the project management, in consultation with project national implementing agencies and stakeholder representatives and incorporated in the Project Inception Report. Such a schedule will include: (i) tentative time frames for PB meetings and (ii) project related Monitoring and Evaluation activities. For each PB meeting the TL will prepare annual project report and submit it to the PB members at least two weeks prior to the meeting for review and comments. In addition, ad-hoc meetings can be scheduled between the Government, UNDP, TL, and other pertinent stakeholders as deemed appropriate and relevant to allow parties to take stock and to troubleshoot any problems pertaining to the project in a timely fashion to ensure smooth implementation of project activities.

Day to day monitoring of implementation progress will be the responsibility of the TL, assisted by experts as deemed necessary based on the project's Annual Work Plan and its indicators. The Project Team will inform the UNDP-CO of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely and remedial fashion. Periodic monitoring of implementation progress will be undertaken by the UNDP-CO through quarterly meetings with the National Executing Agency, or more frequently as deemed necessary. This will allow parties to take stock and to troubleshoot any problems pertaining to the project in a timely fashion to ensure smooth implementation of project activities.

Project Reporting

The Task Leader in conjunction with the UNDP-GEF extended team will be responsible for the preparation and submission of the following reports that form part of the monitoring process:

A Project Inception Report will be prepared immediately following the Inception Workshop. It will include a detailed First Year/Annual Work Plan divided in quarterly time-frames detailing the activities and progress indicators that will guide implementation during the first year of the project. This Work Plan would include the dates of specific field visits, support missions from the UNDP-CO or the Regional Coordinating Unit (RCU) or consultants, as well as time-frames for meetings of the project's decision making structures. The Report will also include the detailed project budget for the first full year of implementation, prepared on the basis of the Annual Work Plan, and including any monitoring and evaluation requirements to effectively measure project performance during the targeted 12 month timeframe.

The Inception Report will include a more detailed narrative on the institutional roles, responsibilities, coordinating actions and feedback mechanisms of project related partners. In addition, a section will be included on progress to date on project establishment and start-up activities and an update of any changed external conditions that may affect project implementation. When finalized the report will be circulated to project counterparts who will be given a period of one calendar month in which to respond with comments or queries. Prior to this circulation of the Report, the UNDP Country Office will review the document. As part of the Inception Report, the project team will prepare a draft Reports List, detailing the technical reports that are expected to be prepared on key areas of activity during the course of the Project, and tentative due dates. Where necessary this Reports List will be revised and updated, and included in subsequent APRs. These technical reports will represent the project's substantive contribution to specific areas, and will be used in efforts to disseminate relevant information and best practices at local, national and international levels.

The UNDP-GEF PIR/APR will be prepared on an annual basis prior to the PB meeting to reflect progress achieved in meeting the project's Annual Work Plan and assess performance of the project in contributing to intended outcomes through outputs and partnership work. The PIR/APR will include the following: (i) An analysis of project performance over the reporting period, including outputs produced and, where possible, information on the status of the outcome; (ii) The constraints experienced in the progress towards results and the reasons for these; (iii) The three (at most) major constraints to achievement of results; (iv) AWP and other expenditure reports; (v) lessons learned; and (vi) Clear recommendations for future orientation in addressing key problems in lack of progress.

Short reports outlining main updates in project progress will be provided quarterly to the local UNDP Country Office and the UNDP regional office by the project team.

During the last three months of the project the project team will prepare the Project Terminal Report. This comprehensive report will summarize all activities, achievements and outputs of the Project, lessons learnt, objectives met, or not achieved structures and systems implemented, etc. and will be the definitive statement of the Project's activities during its lifetime. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the project's activities.

Independent review and evaluation

The project will be subject to two independent external reviews as follows. An independent Mid-Term Review will be undertaken at the mid point of project implementation (September -November 2015). The Mid-Term Review will determine progress being made towards the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term.

The organization and timing of the mid-term review will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term review will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF. An independent Final Review will take place three months prior to the terminal tripartite review meeting and will be undertaken in accordance with UNDP and GEF guidance. The final evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the mid-term review, if any such correction took place). The final evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. The final evaluation should also provide recommendations for follow-up activities, and the report will feature management response to the issues raised. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

Audit clause
The audit will be conducted in accordance with UNDP financial rules and regulations and applicable audit policies on UNDP projects

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT(S) ON BEHALF OF THE GOVERNMENT(S):): (Please attach the Operational Focal Point endorsement letter(s) with this form. For SGP, use this OFP endorsement letter).

NAME	POSITION	MINISTRY	DATE *(MM/dd/yyyy)*
Jose Antonio Gonzalez Norris	GEF Operational Focal Point Peru	MINISTRY OF ENVIRONMENT (MINAM)	12/04/2013

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF/LDCF/SCCF/NPIF policies and procedures and meets the GEF/LDCF/SCCF/NPIF criteria for CEO endorsement/approval of project.

Agency Coordinator, Agency Name	Signature	Date *(Month, day, year)*	Project Contact Person	Telephone	Email Address
Adriana Dinu, UNDP – GEF Executive Coordinator and Director a.i.		March 3, 2014	Oliver Page Regional Technical Advisor EITT	(507) 4548	oliver.page@undp.org

ANNEX A: PROJECT RESULTS FRAMEWORK (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

1. PROJECT RESULTS FRAMEWORK

This project will contribute to achieving the following Country Programme Outcome as defined in CPAP or CPD:
Country Programme Outcome Indicators:
Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one):
Applicable GEF Focal Area Objective: GEF-5 FA Objectives: #3 (CCM-3): "Promote Investment in Renewable Energy Technologies"; and #6 (CCM-6): "Support enabling activities and capacity building under the Convention"

Objective/ Outcomes	Indicators	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
Objective: The objective of the project is to support the government of Peru in the development and implementation of National Appropriate Mitigation Actions in the energy sector	Baseline emission trends	GHG inventory developed at sectoral and national level	GHG energy inventory sufficiently detailed at the regional and sub-sectoral levels to define clear baseline conditions for NAMA implementation	Energy sector GHG inventory report	InformaGEI national inventory is established and operational
	Portfolio of NAMAs in the energy generation and end use sectors	No systematic assessment of potential abatement measures in energy sector	Full assessment of mitigation options in energy sector is conducted and portfolio of potential NAMAs is generated	Project documentation and publications	
	Implementation of two NAMAs in off grid renewable energy generation	No NAMAs in the off grid renewable energy sub sector under implementation	Two NAMAs in off grid renewable energy generation fully designed and under implementation (one of which focuses on off grid electrification with PV panels), including implementation of MRV mechanisms	Project documentation, NAMA coordination entity, MRV reports	Off grid renewable energy programs funded by FISE are fully operational throughout the project lifetime

Objective/ Outcomes	Indicators	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
	Implementation of two NAMAs in grid connected renewable energy generation	No NAMAs in the off grid renewable energy sub sector under implementation	Two NAMAs in off grid renewable energy generation fully designed and under implementation including implementation of MRV mechanisms.	Project documentation, NAMA coordination entity, MRV reports	The Government of Peru maintains its policy of increasing participation of renewable energy in the generation matrix
	Establishment and operation of MRV protocols	No systematic methodology for monitoring GHG emission reductions in the energy sector	Fully designed and operational MRV protocols and procedures for NAMAs in the energy sector	MRV registry	The Government of Peru maintains its commitment to monitor, report, and verify its voluntary abatement programs
	Renewable energy generated by on and off grid sources	Grid connected - 1.48% participation of non-conventional RE Generation in National Grid Off Grid – No systematic monitoring of off grid RE generation	Grid Connected: 3.5% participation of non-conventional RE Generation in National Grid by 2018. Off grid – 100 MW additional off-grid generation (50 MW PV, 50 MW other technology)		
	Direct and indirect GHG emissions resulting from the project	N/A	MRV protocols are used to track the following project targets: Direct emission reductions of 962,000 tons CO2 over 10 years Indirect emission reductions of 1,600,000 tons CO2 over 10 years	MRV registry	
Outcome 1: Established national and regional GHG emission BAU reference baseline for the energy sector	One GHG inventory procedure validated by the relevant energy entities and coherent with InformaGEI and the National Energy Balance by 2014.	Nonexistent legal procedure for a formal, solid, credible and periodic GHG emissions inventory system for the sub-sectors part of the project.	Procedure validated, approved and implemented by the second quarter of 2014.	Signed procedure by the responsible entity's representative available in the responsible entity's internal and website database. TUPA of the responsible	Internal budget for development of these activities exists or can be arranged from other co-financing institutions for the period of 2014-2021. InformaGEI system

Objective/ Outcomes	Indicators	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
				entity modified.	available for 2014, avoiding delays in the structuration of the procedure, or delays/modifications in the future.
	One final report of an inventory based on the approved procedure divided by sub-sector developed during 2014.	Nonexistent updated GHG emissions inventory per selected sub-sector based on a formal methodology. Non-periodically updated inventory to assess the real emissions and impact of mitigation activities.	Updated inventory based on approved procedure by December 2014 using the latest available and required year information.	Formal reports of the inventory by sub-sector approved and publicly available by the responsible entity in their internal and website database.	Same as above. Delays in the approval of the formal procedure that gives guidelines and target dates to the inventory.
	BAU systematized and publicly available reference baseline reports for the selected sub-sectors during 2014 and for a period no shorter than 2013-2021.	Non-existent updated or systematized national or regional GHG BAU reference baselines.	BAU reference baselines approved and in accordance with procedure and PlanCC outcomes by June 2015.	Formal report of the BAU reference baselines approved and publicly available in the responsible internal and website entity database.	Same as above.
Outcome 2: Prioritized mitigation options and MACCs are identified, NAMA Design Documents are developed in the selected sub-sectors (new renewable energy sources both connected and non-connected to the grid), and 4 NAMA activities are ready for implementation	1 sector wide and 2 sub sectoral MAC curves	Nonexistent mitigation options listed and assessed. Nonexistent MAC curves in the selected sub-sectors.	Format approved by March 2014. Energy sector MAC curve reports and detailed sub sectoral mac curves for on and off grid RE approved by the Project Steering Committee.	MAC curve reports approved and signed by the Project Steering Committee, publicly available.	Clear and consistent financial information is available at the sub sectoral level for analysis
	Portfolio of NAMA activities and NAMA factsheets	No portfolio of energy generation and end use NAMAs in place	Portfolio of NAMA activities at the conceptual design level in place for energy generation and end use.	Project documentation. Peruvian NAMA coordination entity documentation	

Objective/ Outcomes	Indicators	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
	Policy and finance instruments for NAMA implementation in two selected sub sectors defined	No systematic assessment of existing and potential policy and finance instruments for on and off grid RE development in Peru	Specific set of policy and financial instruments defined for supporting NAMAs in on and off grid RE, and residential energy efficiency	Formal report approved by the Project Steering Committee and publicly available.	The Government of Peru maintains its policy of increasing participation of renewable energy in the generation matrix
	3 formal training sessions by sub-sector, related to the design of mitigation programmes,	Training sessions exist in different sectors but are not coordinated, with no major consistency in the people that assist, no systematic evaluation system and no formal methodology for NAMA development process.	Training sessions developed by year 1, including content and evaluation methodology. Two annual training sessions (one per sub-sector) conducted during project lifetime	Approved training session content and information by the NAMA entity. Assistance lists, reports per session and evaluation documents per person.	
	Four NAMA detailed designs in place	No NAMA concepts in any of the selected sub-sectors, therefore no potential GHG mitigation potentials, barriers, benefits, financial resources or responsible determined.	NAMA concepts approved by the Project Steering Committee, based on a list of assessed and prioritized mitigation actions; including financing sources and containing coordinated institutional arrangements, and ready to initiate piloting.	Ministerial resolutions or applicable legal documentation as evidence of the NAMA concept information (internal budget, schedule and activities agreed by the responsible entity or entities involved in the process.)	Strong financial commitment to on and off grid renewable energy by the Government of Peru continues throughout project lifetime
Outcome 3: Entities related to renewable energy connected to the grid (all technologies excluding large hydro) and (ii) off grid renewable energy sub-sectors are implementing prioritized NAMAs in a piloting phase and contributing to the	Implementation of NAMA activity #1 (off grid RE with PV)	Large scale PV program programmed for launch in 2014, but not framed as a NAMA	PV electrification NAMA is fully operational and supports the installation of 500,000 PV panels. Expected installed capacity 50 MW. MRV mechanisms fully in place.	NAMA implementing partner documentation, National NAMA coordination entity reports, MRV registry reports	PV electrification programme does not suffer major alterations in scope or financing

Objective/ Outcomes	Indicators	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
achievement of Peru's voluntary mitigation target.	Implementation of Performance Based Payment System for off Grid RE with PV Systems	Payment mechanisms for off grid PV systems not fully defined, energy and GHG abatement goals not integrated.	Mechanism established for payment upon delivery of off grid PV based energy services, based on independent assessment of compliance with NAMA MRV protocol	Ministry of Energy financial disbursement records, NAMA coordination entity reports	PV electrification programme does not suffer major alterations in scope or financing
	Implementation of NAMA activity #2 (off grid RE)	NAMA activity undefined	Off grid NAMA activity fully operational. Expected installed capacity minimum of 50 MW. MRV mechanisms fully in place.	NAMA implementing partner documentation, National NAMA coordination entity reports, MRV registry reports	FISE continues to support off grid electrification with RE in addition to PV program
	Implementation of NAMA Activity #3 (grid connected RE)	NAMA activity undefined	On grid NAMA activity fully operational. Must track contribution to increasing RE grid participation to 2.5% by end of project and 5% by 2020. MRV mechanisms fully in place.	NAMA implementing partner documentation, National NAMA coordination entity reports, MRV registry reports	The Government of Peru maintains its policy of increasing participation of renewable energy in the generation matrix
	Implementation of NAMA Activity #4 (grid connected RE)	NAMA activity undefined	On grid NAMA activity fully operational. Must track contribution to increasing RE grid participation to 2.5% by end of project and 5% by 2020. MRV mechanisms fully in place.	NAMA implementing partner documentation, National NAMA coordination entity reports, MRV registry reports	The Government of Peru maintains its policy of increasing participation of renewable energy in the generation matrix
	Implementation of MRV protocols and tracking of NAMA related GHG emission reductions	MRV protocols for pilot NAMAs not in place	MRV protocols are used to track the following project targets: Direct emission reductions of 962,000 tons CO2 over 10 years Indirect emission reductions of 1,600,000 tons CO2 over 10 years	NAMA implementing partner documentation, National NAMA coordination entity reports, MRV registry reports	

Objective/ Outcomes	Indicators	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
Outcome 4: Accurate mechanism for measurement and accounting of actual GHG emission reductions from mitigation actions in the energy generation and end-use sector are in place.	MRV protocol designed	No MRV protocols in place	MRV protocols for energy sector NAMAs designed and approved by Steering Committee	Project documentation, steering committee minutes	
	Implementation of energy sector MRV registry	No energy sector MRV registry	Energy sector MRV registry in place	NAMA Coordination Entity documentation	The Government of Peru maintains its policy of achieving its voluntary emission reduction targets through the systematic implementation of NAMAs in the energy sector
	Mainstreaming of climate change mitigation in Ministry of Finance's Results Based Budgeting Program	Results Based budgeting program in operation with no CC-related indicators	Climate Change related indicators incorporated in ministry of Finance's Results Based Budgeting Program	Results Based budgeting program documentation	Results Based Budgeting continues to be a planning and disbursement tool for the Ministry of Finance
	Application of MRV procedures	No MRV procedures in mlace for Energy sector NAMAs	MRV procedures implemented in all energy related NAMA activities	MRV registry reports	

ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).

1. Response to comments at the time of CEO Endorsement Presentation

GEF SEC Comment	UNDP Response
1. The estimates for GHG emissions reductions are based on a claim that the GEF project will contribute to 30% achievement of the Peru target for 2021. At the time of CEO endorsement we expect a very strong justification linking project deliverables with adoption of Government policies and financial investments that can deliver on this promise. We expect a clear application of appropriate methodologies and a distinction between direct and indirect benefits. The output of studies alone will not justify direct benefits.	The project includes a GHG emission reduction calculation, based on the results achieved by the project through the support for NAMA implementation. The relevant section (2.4) in the Project Document and the corresponding calculation (Annex 7.3) clearly explain the assumptions and methodologies used to calculate direct and indirect GHG emission reductions.
2. The proposed use of GEF funding as investment in Component 3 is not well defined. At the time of CEO endorsement we expect clear definition of the application of GEF funding for investments that can be directly linked to implementation of the selected NAMAs. Investment funding cannot be used as technical assistance.	During the project preparation phase a comprehensive analysis was undertaken to assess the most effective ways to utilize and disburse the GEF funding available for investment. As described in the project document, it was decided that the best way for the GEF to contribute with direct investment for NAMA implementation is to support the implementation of MRV protocols, particularly for off grid renewable energy NAMAs. This addresses a persistent weakness in off grid renewable programs, which is the Government's low capacity to verify the proper performance of off grid energy systems, and ensures that the project achieves its desired GHG emission reduction results.
3. The project will produce a variety of studies and reports. At CEO endorsement we expect to see a clear description in the project components for actual implementation by the Government of the recommendations in the studies and reports for selected NAMAs.	The project design phase has focused much of its efforts in reducing this uncertainly and ensuring that the project support leads to actual implementation. In its structure, the project has made more explicit that it supports both NAMA design and implementation, with component 3 dedicated entirely to NAMA implementation. By conducting a selection of sub-sectors during the project preparation phase, the project is now designed to develop detailed NAMAs in sub sectors which are of known priority to the government (off-grid and on-grid renewable energy). Likewise, the project design is linked to planned government programs in these fields, which provides a much greater degree of certainty for NAMA implementation. Finally, one NAMA activity to be supported (off grid PV electrification) has been pre-selected during project design, as it is an initiative that is already a government priority and offers a very good opportunity to pilot NAMA implementation.
4. Confirmed co-financing letters with clear delineation of cash, in-kind, and loans will be required.	Co-financing letters have been secured as requested.
5. Should there be decisions and guidance from the UNFCCC on MRV during the project preparatory and implementation phase, the project is expected to	The project structure follows all NAMA related guidance provided by UNFCCC and agencies supporting NAMA design and implementation. Likewise, the project is designed

follow them. We expect this to be clarified in the CEO endorsement document.	to incorporate additional guidance as it becomes available. The project also coordinates heavily with other NAMA design and implementation activities in Peru, since it is essential that all initiatives follow the same guidance and protocols.

2. Response to Council Comments

Council comment (Germany)	**UNDP Response**
For Component 2, please specify in final project document how the development benefits will form part of the prioritization process.	The NAMA design process seeks to identify those activities with significant positive national development impact and global environmental benefits. As such, criteria for measuring both national and global benefits are mainstreamed throughout the NAMA design and MRV processes. National benefits are included in the list of criteria for assessment in Component 2, and the pre-screening exercise conducted during the PPG applied national benefits criteria. The pilot NAMA pre-selected for implementation, focused on off-grid PV systems, demonstrates the synergies sought throughout the project. It will also be important to measure and quantify national co-benefits; hence this aspect is included in the MRV component of the project as well.
Regarding Component 4 which will set up MRV plans for each NAMA, please provide more information about the proposed MRV Committees. It might make sense to assign the measurement task to the NAMA implementer, as part of the terms for gaining support. This information could then be reported to the committee, which would have the verification role.	UNDP and the Government of Peru welcome this comment and have incorporated it into the project design. The NAMA implementing agency will have the responsibility of monitoring and reporting NAMA results, and the MRV Committees are expected to perform the verification. MAMA activities that are supported by international carbon finance mechanisms may include additional verification mechanisms as necessary. This rationale is being piloted in the PV pilot NAMA mentioned above. The service providers installing and ensuring operation and maintenance of the PV systems will be required to monitor system performance and provide operational reports. The project will support the establishment of an independent government verification mechanism, which will have the dual benefit of ensuring that end users are receiving proper service and verifying the emission reductions claims of the NAMA implementer.
Regarding the risk that climate change impacts will likely affect the generation of electricity from hydropower: it is highly unlikely to expect that adaptation measures are going to be able to stop the melting of the glaciers, which are key sources of hydropower in the country. What other renewable energy sources – beyond hydropower – are being explored?	The project explicitly excludes large hydro development and focuses on more sustainable sources of renewable energy such as small hydro, biomass, wind, and solar. These are less susceptible to climate change, although precautions in this regard will also be taken in the support of these technologies. In fact, the project supports the national energy strategy which calls for diversification of the energy matrix, acknowledging the risks associated to heavy reliance on two main sources of energy (natural gas and large hydro).

3. Response to STAP comments

STAP comments	UNDP Response
1. Establishment of national GHG inventory system: Normally this is a component of the national communications programme which requires estimation and reporting of GHG inventory for the country. STAP suggests coordination with the National Communication programme.	The project is fully coordinated with the National Communications programme in Peru. The project will only conduct additional sub-sectoral and sub-national baseline GHG emissions inventories that are necessary for the development of NAMAs in the energy sector.
2. NAMA's in the energy sector: STAP suggests a technology and economic analysis of mitigation opportunities in the energy sector for Peru. STAP also recommends consideration of technology transfer needs to meet the GHG emission reduction target for Peru.	An initial assessment of technology options was conducted during the project preparation phase. An in depth economic and technology assessment will be conducted during the project implementation. Technology transfer needs will be identified in Component 2 of the project.
3. Barrier analysis: STAP suggests conducting a systematic barrier analysis for different technologies, policies and measures required to enable Peru to meet the established emission reduction targets.	This recommendation has been fully incorporated into the project design and a systematic barrier analysis is an integral part of the project.
4. MRV: STAP commends Peru and project proponents for undertaking a plan for establishing MRV system and national registry for NAMA's.	The MRV component is considered essential to the project success and is a strong focus of the GEF investment support.

ANNEX C: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS[7]

A. DESCRIBE FINDINGS THAT MIGHT AFFECT THE PROJECT DESIGN OR ANY CONCERNS ON PROJECT IMPLEMENTATION, IF ANY:

N/A

B. PROVIDE DETAILED FUNDING AMOUNT OF THE PPG ACTIVITIES FINANCING STATUS IN THE TABLE BELOW:

PPG Grant Approved at PIF: 45,000			
Project Preparation Activities Implemented	***GEF/LDCF/SCCF/NPIF Amount ($)***		
	Budgeted Amount	***Amount Spent To date***	***Amount Committed***
1. Assessment of Peru's energy sector in the perspective of NAMAs definition	10,000	10,000	
2. Conduct of Logical Framework Analysis Workshop	7,500	7,500	
3 Definition of a framework for the design of NAMAs	10,000	10,000	
4. Design of project activities based on the agreed project log frame	7,500	7,500	
5. Identification and negotiation of co-financing, confirmation of co-funding sources.	5,000	0	10,000
6. Project institutional arrangements and implementation plan, including coordination with other initiatives and project counterparts	5,000	0	
Total	45,000	35,000	10,000

[7] If at CEO Endorsement, the PPG activities have not been completed and there is a balance of unspent fund, Agencies can continue undertake the activities up to one year of project start. No later than one year from start of project implementation, Agencies should report this table to the GEF Secretariat on the completion of PPG activities and the amount spent for the activities.

ANNEX D: CALENDAR OF EXPECTED REFLOWS (if non-grant instrument is used**)**

Provide a calendar of expected reflows to the GEF/LDCF/SCCF/NPIF Trust Fund or to your Agency (and/or revolving fund that will be set up)

N/A

United Nations Development Programme
Country: Peru
PROJECT DOCUMENT[1]

Project Title:	Nationally Appropriate Mitigation Actions in the Energy Generation and End-Use Sectors of Peru
UNDAF Outcome(s):	The State, with the participation of civil society, the private sector, scientific and academic institutions, will have designed, implemented and/or strengthen policies, programs and plans focusing on environmental sustainability, for the sustainable management of natural resources and biodiversity conservation.
UNDP Strategic Plan Environment and Sustainable Development Primary Outcome:	Increased effective response to climate change reflected in national programmes and external assistance programmes
UNDP Strategic Plan Secondary Outcome:	Environmental considerations are mainstreamed in sector and local-level strategies and plans
Expected CP Outcome(s):	Institutions strengthened for the design and implementation of low-emissions and climate resilient strategies and/or development plans.
Expected CPAP Output(s):	Institutions strengthened for the design and implementation of low-emissions and climate resilient strategies and/or development plans.
Executing Entity/Implementing Partner:	Ministry of Energy and Mines
Implementing Entity/Responsible Partners:	United Nations Development Programme - Peru

Brief Description

The GEF project will strengthen the capacity of the Peruvian government to identify and structure NAMAs in the energy sector, namely to create incentive for investment in new renewable energy facilities connected to the grid (solar, wind, biomass, geothermal and hydro under 20 MW), and the use of renewable energy in isolated systems (solar, biomass, wind and micro-hydro). The project will build upon existing and planned energy sector mitigation efforts, national development policies, and the national NAMA development and implementation framework. The project will establish priorities within the energy sector, define specific NAMAs with clear and achievable mitigation results, and pilot the implementation of four NAMAs in renewable energy generation, both on and off grid. The project will contribute to the country's attainment of its voluntary mitigation targets in the energy sector, with an expected direct emission reduction of 962,000 tons of CO2 equivalent and an additional indirect emission reduction of 1,600,000 million tons of CO_2e. As a positive side effect, NAMAs will generate national benefits related to national economic growth, poverty reduction, competitiveness and energy security.

Programme Period:	2014-2018	Total resources required	$US 36,510,000
Atlas Award ID:	00077699	Total allocated resources:	
Project ID:	00088316	o GEF	$US 4,500,000
PIMS #	4679	Other:	
Start date:	March 1, 2014	o MINAM	$US 800,000
End Date:	March 1, 2018	o MINEM	$US 20,800,000
		o MEF	$US 9,350,000
Management Arrangements: NIM		o UNDP	$US 1,060,000
		Total Co-Financing:	$US 32,010,000
PAC Meeting Date	_____		

Agreed by (Government):

Date/Month/Year

Agreed by (Executing Entity/Implementing Partner):

Date/Month/Year

Agreed by (UNDP):

Date/Month/Year

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LIST OF ACRONYMS

BAU	Business as usual
CDM	Clean Development Mechanism
CEPLAN	National Center for Strategic Planning
CNCC	National Climate Change Commission
CO_2	Carbon dioxide
EE	Energy Efficiency
ERNC	Non-Conventional Renewable Energy
FDI	Foreign direct investment
FISE	Social Inclusion Energy Fund
FiT	Feed-in tariff
FONER	National Fund for Rural Electrification
GEF	Global Environment Facility
GHG	Greenhouse Gas
GoP	Government of Peru
IDB	Inter-American Development Bank
InformaGEI	Data Generation Network for the National Greenhouse gases Inventory
KWh	Kilowatt-hour
LECB	Low Emission Capacity Building Project
LEDS	Low Emission Development Strategies
MINAM	Ministry of Environment
MEF	Ministry of Economy and Finance
MINEM	Ministry of Energy and Mines
MRV	Monitoring, Reporting and Verification
NAMA	Nationally Appropriate Mitigation Action
NGO	Non-Governmental Organization
NUMES	New Sustainable Energy Matrix Project
OSINERGMIN	Energy and Mining Investment Supervisory Board
PIR	Project Implementation Review
PNER	National Rural Electrification Plan
PPA	Purchasing Power Agreement
PROSEMER	National Program for Efficient and Sustainable Energy
PSC	Project Steering Committee
PV	Photovoltaic
RE	Renewable Energy
RBB	Result Based Budgeting
SCNCC	Second National Communication on Climate Change
MWh	Megawatt hour
WB	World Bank
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change

1. SITUATION ANALYSIS

1.1. Context, National and Global Significance

The concept of Nationally Appropriate Mitigation Actions was introduced in the Bali Action Plan in 2007 (Decision 1 CP/13). At this moment, the parties to the United Nations Framework Convention on Climate Change (UNFCCC) called for "Enhanced national/international action on mitigation of climate change" including "Nationally appropriate mitigation actions by developing country Parties in the context of sustainable development, supported and enabled by technology, financing and capacity-building, in a measurable, reportable and verifiable manner" (paragraph 1bii).

By December 11, 2010, during the CoP 16, as part of the Cancun Agreements, the Parties further agreed that "developing country Parties will take nationally appropriate mitigation actions in the context of sustainable development, supported and enabled by technology, financing and capacity-building, aimed at achieving a deviation in emissions relative to 'business as usual' emissions in 2020" (Paragraph 48). Likewise, the agreements took note of the first NAMAs formally communicated by the parties (paragraph 49). The Cancun Agreements also differentiated between NAMAs that were domestically supported and those that were internationally supported, specifying that both were subject to being monitored, reported and verified domestically, but that the latter would be subject to international monitoring, reporting and verification (MRV).

Peru's voluntary mitigation targets

Ever since the development of the NAMA concept, Peru has clearly expressed a willingness to participate in the development and implementation of voluntary mitigation actions. Peru has already presented its intentions to implement NAMAs through two formal communications to the UNFCCC, as described below.

On June 21, 2010, the Government of Peru submitted its first voluntary targets to the UNFCCC, in a communication that expressed "the firm willingness of its government to strengthen the collective action to mitigate climate change through the development of a sustainable and low-carbon economy" (FCCC/AWGLCA/2011/INF.1), specifying that: "for the development and implementation of its mitigation actions, it requires support from the international community through the range of financial and cooperation mechanisms available".

In this letter, the following voluntary targets were communicated (unofficial translation, please refer to original Spanish version annexed to this document):

(a) The reduction to zero of the net deforestation of primary or natural forests by 2021;

(b) The modification of the current energy matrix, so that by 2020, renewable energy (nonconventional energy, hydropower and biofuels) represents at least 33 per cent of the total energy consumed by the country;

(c) The design and implementation of measures that allow the reduction of emissions caused by the inappropriate management of solid waste.

In a subsequent communication to the UNFCCC sent on July 25, 2011 (Letter No. 055-2011 DVMDERN/MINAM), the Government of Peru further refined and reaffirmed these three voluntary mitigation targets and set them for the year 2021, symbolically linked to the country's bicentennial anniversary of independence. The targets were estimated using the year 2000 as a baseline, building upon the Second National Communication to the UNFCCC (SNC) and the 2000 Greenhouse Gas Inventory. The revised proposed mitigation actions remain aimed at three sectors; land use, land use change and forestry (LULUCF), energy, and solid waste management.

The redefined voluntary mitigation targets for 2021, as expressed in this communication, are the following (unofficial translation, please refer to original Spanish version annexed to this document):

(a) Zero net emissions for the LULUCF sector - This target seeks to reduce the emissions by approximately 45% in relation to the level of the year 2000, potentially avoiding the emission of 50 M TCO_2e, through the conservation of 54 million ha of primary forest and other complementary measures.

(b) Modify the national energy matrix so that non-conventional renewable energy and hydro energy represent at least 40% of the total energy consumed in the country - This is to be achieved through the combination of the use of renewable energy (solar, wind, biomass, tidal and geothermal) and increased energy efficiency to reduce the use of fossil fuels. This will represent an emission reduction for this sector of approximately 28% in relation to the level of the year 2000, potentially avoiding the emission of 7 M TCO_2e.

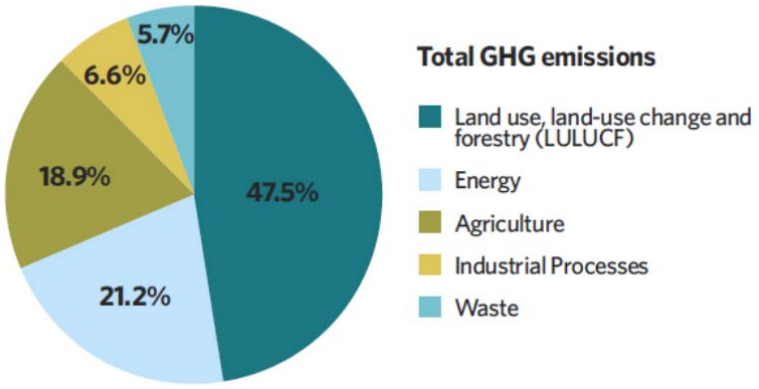
(c) Methane capture and use from adequate urban solid waste disposal - To achieve this target, a national program will be launched to construct sanitary landfills and eventual complementary installations in 31 large and medium cities, which will result in a reduction of approximately 7 M TCO_2e.

The communication also expresses the need to "count on the firm support of the international community through the financial and cooperation mechanisms established at COP 16, as well as those mechanisms which are currently functioning and available."

Peru´s energy sector

The energy sector is the second largest source of GHG emissions in Peru, after LULUCF, with 21.2% of the country's total GHG emissions (25,400 $GgCO_2e/2000$)[2]. GHG emissions from the energy sector increased in a significant way, by 15% between 1994 and 2000 (SNCCC). The projections realized for the SNCCC estimate that the emissions from the energy sector would almost triplicate over a 50-year period (2000-2050).

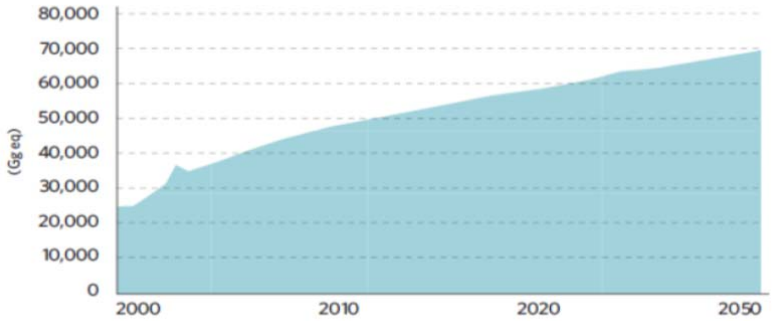
Figure 1- Percentage of GHG Emissions by Categories



Source: 2NCCC MINAM

[2] This is based on the latest official GHG inventory of 2000, presented in the Second National communication to the UNFCCC. Peru is currently initiating the elaboration of the third NCCC, which will include an updated national GHG inventory for 2008.

Figure 2 Projection of GHG emissions from the energy sector (2000-2050)



Source: 2NCCC MINAM

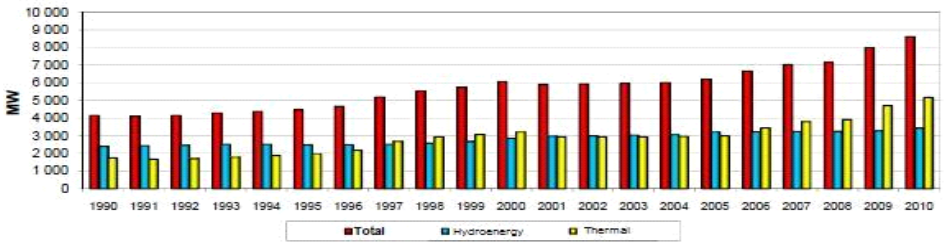
GHG emissions from the energy sector have had a significant increase of 15% between 1994 and 2000 (2NCCC). This increase is intrinsically linked with the economic growth of the country; GDP has grown of 23% during the same period. Peru has sustained high economic growth in the last decade with an average growth of 5.7% during the period 2001-2010. Despite the uncertain international context Peru is expected to remain the fastest growing economy in the region and to maintain sustained rate of growth of around 6% for the period 2012-2014 (Multiannual Macroeconomic Framework 2012-2014, MEF).

The consumption of electricity has increased significantly, from 15,000 GWh to 25,000 GWh during the period 1995-2007 (2NCCC). In addition to economic growth, this higher demand is also related to the electricity coverage which has undergone a positive evolution from 48% in 1992 to 82% in 2010 (Osinergmin). According to the latest national population census (2007), Peru has 28.2 million inhabitants, of which 76% are living in urban areas and 24% in rural areas. The projections estimate that the country will have 43 million inhabitants in 2050 (INEI).

Electricity production and demand

During the year 2010, 35,908 GWh of electricity were produced; 56% by Hydro plants and 44% by thermal plants. The current national installed capacity is 40% hydro and 60% thermal (total 8,613 MW) (Electricity statistics 2010, MINEM), with an additional 0.7MW of wind power. The installed capacity has more than doubled in the last 20 years (1990-2010), principally with the installation of new thermal capacity which increased by 197% during this period, while hydroelectricity only increased by 43%.

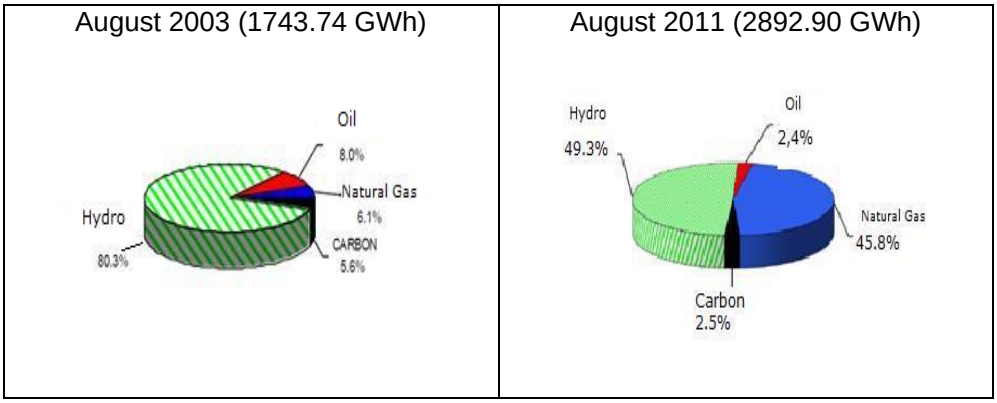
Figure 3 Evolution of the installed electricity capacity



Source: MINEM

The surge in the number of thermal power plants built in the last 2 decades is due to the initiation of the exploitation of the Camisea Natural Gas field which provides thermal plants with a cheaper source of fuel. The comparison between sources for electricity production before and after Camisea clearly shows a marked difference:

Figure 4: Electricity production per type of fuel – Comparison 2003-2011



Source: Osinergia

National Energy Policy 2010-2040

Peru's National Energy Policy for the period 2010-2040 was approved in year 2010 (D.S. N'064-2010-EM), having as two of its principal objectives "to support a diversified energy matrix with emphasis on renewable sources of energy and energy efficiency, and to develop an energy sector with minimal environmental impact and low carbon emissions in the framework of sustainable development". The policy includes the following objectives: i) diversified and competitive energy matrix based on renewable energy and energy efficiency, ii) universal access to energy supply, iii) increased efficiency through the productive system and final energy use, iv) energy self-sufficiency and v) an energy sector with minimum environmental impacts and low GHG emissions.

Legal framework to promote renewable energy and the efficient use of energy

The following laws are relevant in the context of implementing Peru's energy mitigation objectives and are provide a favourable context to for this project:

Promotion of investment in electricity generation with renewable energy sources

The law for the promotion of investment in electricity generation with renewable energy sources (D.L. 1002) was adopted in 2008 and declared the use of renewable energy a national interest and a public necessity. It defined renewable energy as biomass, wind, solar, geothermal and tidal energy, as well as hydroelectric facilities with an installed capacity below 20MW. The law stated that the national energy and mining supervising entity, OSINERGMIN, would have preferential treatment for renewable energy projects when tendering for additional capacity.

The Bylaw for the generation of electricity with renewable energy (D.S. Nº 050-2008-EM), also approved in 2008, established the regulation of the tendering process for renewable energy in charge of OSINERGMIN and included incentives for renewable energy, namely:

- Priority for the dispatch of electricity and access to the transmission and distribution network;
- Long-term stable tariffs established through bidding;
- Guaranteed purchase of the total electricity produced.

Law and bylaw for the promotion of biofuels

The Law for the Promotion of Biofuels (Law no. 28054) was approved in 2003, and set the legal basis for the production and commercialization of biofuels. Its bylaw was adopted in 2008 and established that as of 2010 all, the gasoline commercialized in the country should contain a percentage of biofuels of 7.8%.

Universal Energy Access Plan (2013-2022)

Approved by the Ministry of Energy and Mines in May 2013, this plan has as its main goal to achieve universal access of the population to energy supply, providing access to electricity and access to technology for lighting, communication, cooking, heating and community services). The plan be funded with resources from the Energy Social Inclusion Fund (FISE), created by Law no. 29852, as well as resources for the National Rural Electrification Plan 2013-2022.

Social Inclusion Energy Fund (FISE)

The FISE was launched in April 2012 with the goal of promoting the massive use of natural gas (residential and vehicular) in vulnerable sectors, supporting the development of new energy supplies at the in the energy frontier[3] (photovoltaic cells, solar panels, biogas digesters, among others), and is the primary vehicle for the implementation of the Universal Energy Access Plan. The FISE is a policy mechanism of social inclusion, aimed at expanding energy access through:

- The development of new energy supply sources for off grid communities, focused on the most vulnerable populations.
- The promotion of massive use of natural gas (residential and vehicular) in vulnerable sectors.
- The promotion of the access to LPG in vulnerable urban and rural areas.

In the first stage of the implementation of FISE, the priority has been the promotion of the access to LPG distribution using discount vouchers and the FISE kitchen kit (efficient stoves) in the most vulnerable sectors of the population. The second phase is expected to promote the development of off grid renewable energy, through a mechanism of competitive auctions that allow the participation of private investment. The target percentage for the first two years is 20% of the Peruvian citizens that are vulnerable and not connected to the network.

Peru CDM experience, a stepping-stone for scaled-up action

Peru has accumulated significant experience with mitigation projects through the Kyoto Protocol (KP) Clean Development Mechanism during the last ten years. The Government of Peru has ratified the UNFCCC in 1993, and the KP in 2002. To this day, Peru has registered 54 CDM projects, which are expected to reduce emissions annually by 7,045,812 TCO2e,. The majority of the projects are hydroelectric, with 36 projects registered, followed by landfill gas and solar, with 3 projects registered each. The other projects are wind farms, fossil fuel switches (oil to gas

[3] The "energy frontier" is a term utilized in Peru's 2013-2022 Universal Energy Access Plan, encompassing the provision of energy and electricity services to isolated off grid communities and low income users with irregular and/or unaffordable access to the grid.

and coal to gas), methane avoidance in wastewater, reforestation, supply side energy efficiency (single cycle to combined cycle) and biomass energy.

Peru is also home to the first efficient cook stove Programme of Activity (PoA) registered in the voluntary market through the Gold Standard (Qori Q'oncha programme) and to four PoAs for renewable energy connected to the grid registered under the CDM, the Tunki programme (for hydro projects under 20 MW), the EN BANDEN large scale hydro PoA (for small and large scale hydro projects), the Inti Renewable Energy Program of Activities (for all renewables connected to the grid) and the Tepeu programme (for wind projects).

This technical knowledge and understanding of mitigation activities, gathered by the private and public sectors through concrete project experiences and the capacity development programmes executed in Peru during the last 10 years (World Bank CFAssist, UNEP CD4CDM and UNDP Carbon 2012), serves as a stepping stone for post-2012 scaled-up market mechanisms, including the exploration of credited NAMAs and sectoral market mechanisms.

1.2. Baseline Project

The Government of Peru is demonstrating a significant commitment to implementing national mitigation measures, and developing a transition toward a low-emission economy while sustaining steady economic growth. The voluntary mitigation targets submitted by Peru to the UNFCCC represent an initial effort by the country to quantify its willingness to contribute to climate change mitigation, and to launch the process of decoupling economic growth and greenhouse gas emissions. However, the Government of Peru is conscious that its initial voluntary mitigation targets need to be refined, and that its mitigation actions need to be structured on a solid foundation based on reliable information, well-established baselines and accurate projections.

The GEF project builds upon a strong national commitment consistent with the country's formal declaration that it will develop and implement Nationally Appropriate Mitigation Actions in the energy sector. The establishment of an initial target for this sector provides a clear framework for the project, as the country's objective is to modify the national energy matrix so that non-conventional renewable energy and hydro represent at least 40% of the total energy consumed in the country.

In this context, the Government of Peru is leading an effort, with the participation of multiple national and international stakeholders, to conduct an in-depth analytical process that will lead to the implementation of NAMAs in order to reach its voluntary targets. Currently, there are several planned initiatives that clearly contribute toward this objective, of which the most relevant are described below. The GEF initiative will be immersed in this context and will take the lead on the development of a NAMA framework for the energy generation and end-use sector, both improving the coordination amongst these initiatives and complementing these actions to ensure that the country is fully enabled to implement 4 structured and integrated NAMAs in the energy sector.

The project baseline consists of the numerous ongoing and planned activities that Peru is undertaking for both the design and implementation of NAMAs. In the NAMA design and development process, the baseline consists of a broad set of initiatives that aim to establish a common framework for the country to design NAMAs and set national low emission development priorities. The NAMA implementation baseline consists of ongoing and planned initiatives in the energy sector that are currently not structured as NAMAs but have significant emission reduction potential and will be incorporated into the implementation phase of the project.

1.2.1. NAMA Design and Development Baseline Activities

Ongoing NAMA initiatives

Since expressing its voluntary mitigation targets in the context of the Copenhagen Accord, the Government of Peru has been very active in exploring NAMA opportunities, attracting support and investment from Annex 1 countries and international organizations. Exploratory and preliminary design work for future NAMAs has been done in the following sectors.

Sector	Activity	Main Objective	Support
Energy	Bioenergy	Promote good practices in the development and utilization of biomass resources, and promote the diversification of the energy matrix	ICI - BMU
Housing	Sustainable Housing	Promote the introduction and application of energy efficiency and renewable standards in new residential houses in the National Building Regulation.	EU – CAF
	Sustainable Buildings	Develop a roadmap for the promotion of a sustainable buildings market. Implement demonstration projects (construction of low-carbon homes). Establish a monitoring system for energy savings and GHG emission reductions.	Environment Canada
Industry	Construction Materials	Promote energy efficiency and best practices in the construction sector. LEDS for the construction industry which includes NAMAs and MRV systems	UNDP
Waste	Solid Waste Management	Design the legal and technical tools that are necessary to capture, destroy or reuse methane for energy. To achieve this, a sectorial GHG inventory will be developed and a baseline will be established.	NEFCO
Transport	Low Carbon Transport in Lima and Callao	Promote urban mobility through integrated mobility systems energy efficiency labelling on light cars, and land use planning.	British Embassy

Source: Ministry of Economy and Finance.

Domestic Carbon Market and Partnership for Market Readiness

The Ministry of Economy and Finance, in collaboration with the IDB, is undertaking the feasibility study of a domestic carbon market in Peru, including its legal and institutional framework, as well as the potential internal demand for voluntary carbon credits. The GEF project will build upon this foundation for the implementation of a pilot NAMA linked to the deployment of off grid renewable energy technologies. The GEF contribution will be focused on ensuring proper the MRV of the NAMA initiative. This will be linked to the eventual implementation of a performance based payment mechanism launched by the government of Peru based on the results of the domestic Carbon Market and Partnership for Market Readiness initiatives.

Furthermore, Peru has recently joined the World Bank's Partnership for Market Readiness (PMR) initiative. In March 2013, Peru presented its organizing framework for consideration and discussion by the Partnership Assembly and is currently starting the process of formulation its Market Readiness Proposals (MRP) for final approval. The PMR will support Peru in mapping readiness needs and capacity gaps in various NAMAs to select suitable sectors for a market

instrument; develop market readiness infrastructure, and prepare for piloting. The GEF project will form a strong partnership with the PMR since the initiatives are strongly complementary. The combination of the GEF and PMR project will allow the Government of Peru to explore a range of NAMA implementation activities, sharing NAMA development methodologies, institutional arrangements, and implementation modalities as appropriate. This allows the GEF project to be inserted in a very robust context, with strong engagement by the main national stakeholders and institutions.

The Data Generation Network for the Inventory of Greenhouse Gases (InformaGEI)

The Government of Peru is implementing a National GHG information management system, named InformaGEI, which allows the collection of data and the generation of national GHG inventories, as well as overcoming access to information barriers. This will be part of the National Environmental Information System (SINIA for its acronym in Spanish), an integration network that allows the use and exchange of information to be use in decision-making processes. The InformaGEI is a mechanism to promote and coordinate efforts for the generation, systematization and dissemination of information on emissions of greenhouse gases across all sectors of the national economy.

The InformaGEI works as an institutional integration network that incorporates a set of entities, both public and private, linked to the generation of data on GHG emissions. The authorities of the institutions that make up the InformaGEI will comply with the preparation and submission of annual reports on sectoral GHG emissions produced by companies and activities under each sector. These reports will follow appropriate InformaGEI requirements, following national environmental indicators, metrics and methodologies as well as other criteria defined by the Ministry of Environment. The reports will be forwarded to the Ministry of Environment, including consolidated data of GHG emissions according to the format established by the InformaGEI.

The existence of this platform will ensure that the GHG data generated by the project is incorporated into a sustainable registry which will include the generation and update of bottom up information by the relevant sectors.

Result Based Budgeting

Result Based Budgeting (RBB) is a public management strategy, implemented by the Government of Peru, since 2008 by the approval of the Budget Act for Public Sector – fiscal year 2008 (Law N 28927) with the objective of linking resource allocation to measurable outputs and outcomes for the population. For this purpose RBB requires the existence of a definition of the results to be achieved, the commitment to achieve those results over other secondary objectives, the implementation of procedures for generating information on the results as well as tools for management and accountability. The Ministry of Economy and Finance is promoting the use of this strategy and its methodology across several sectors, programs and projects, aiming to strengthen the impact of all actions promoted by the government on national development goals.

The Ministry of Economy and Finance is interested in incorporating climate change mitigation and adaptation indicators into the national RBB strategy. This is an important foundation for NAMA implementation and MRV, as it will mainstream the implementation of MRV into the national budgeting process for NAMA related activities.

CCPlan

The Ministry of Environment, in coordination with the Ministry of Economy and Finance, the Ministry of Foreign Affairs and the National Center for Strategic Planning (CEPLAN) is implementing the Mitigation Action Plan and Scenarios/ Climate Change into Development Planning (MAPS/CCPlan) initiative, with the support of the Children's Investment Fund Foundation (CIFF) and the Swiss Agency for Development and Cooperation (SDC). The first

phase of this initiative will be executed during the 2011-2014 period, and focuses on strengthening national capacities to develop climate change scenarios and incorporate climate change criteria into national planning processes. Phase II (2015) will be focused on the design of policies, plans and tools for reducing the impact of climate change on the national development and contract towards a low carbon economy, and Phase III (2016 – 2021) will have as its main objective the implementation of such policies, plans and instrument, in order to catalyze long-term transformation and encourage low carbon investments.

The GEF project will have direct impact on the implementation and further development of CCPlan, building on its work on the identification of mitigation options for the energy sector as well as contributing to consolidate the national methodological framework for the prioritization of public policy options with a climate change focus as well as tools for the implementation of NAMAs in the Peruvian context.

Low Emission Capacity Building

The UNDP is implementing, during the 2012-2015 period, the Low Emission Capacity Building Global Programme (LECB) in Peru. This program focuses on the development of a national strategy that decouples carbon emissions from economic growth. This initiative will strengthen the national GHG inventory system, establishing a national platform to update inventories at the national, sectorial, and sub-national levels. It will also contribute to the development of national MRV systems that will comply with national and international standards in the context of NAMA implementation. One of the project activities is to support the development of the energy sector greenhouse gas baseline, and therefore will serve as co-financing for this project activity.

Sub National Green LECRDS

The UNDP is currently implementing the Sub-National Green Low Emission, Climate Resilient Development Strategy (Sub National Green LECRDS) in the Piura and Tumbes Region, funded jointly by the UNDP, the Government of Ontario, and the regional governments of Piura and Tumbes. This initiative focuses on sub-national planning processes intended to develop Integrated Regional Climate Change Plans. The project will help develop detailed socio-economic analyses to identify efficient, cost effective mitigation measures that can be implemented in the short, medium and long term. This includes doing regional energy balances and baseline regional GHG emissions analyses, thus directly contributing to the project goals.

1.2.2. NAMA Implementation Baseline Activities

Peru is planning and/or implementing a series of policies and programs that support the country's energy related NAMA objectives. These activities have yet to be structured into a NAMA framework, but will be the basis of the implementation actions supported by the project. By incorporating these activities into energy sector NAMAs, the Government of Peru will be able to clearly register its mitigation actions. More importantly, the NAMA framework will enhance the emission reductions objectives of these actions, thus strengthening their impact and providing further incentives for further reduction of GHGs. The most relevant of these activities are listed below:

Bidding processes for grid connected renewable energy

As mentioned above, the Law for the Promotion of Renewable Energy establishes tendering process for renewable energy, offering the following incentives; priority for the dispatch of electricity and access to the transmission and distribution network; Long-term stable tariffs established through bidding; and guaranteed purchase of the total electricity produced. As detailed in Annex 7.6 under this initiative two tenders were developed on year 2010 and 2011 and a third one is under development, for its launch and implementation in 2014 – 2015. The GEF project will use this initiative as the core element to build on the promotion of grid

connected renewable energy sources, including their past experience and future development planning, expecting to increase grid connected generation from renewables from the current participation of less than 1.5% to at least 2% by the end of the project.

FISE Tender for the supply of electricity with renewable energy resources in areas not connected to the grid

Following the publication of the law for the promotion of investment in electricity generation with renewable energy sources (D.L. 1002) in 2008, MINEM approved in year 2013 the bylaw for the promotion of investments for electricity generation in areas not connected to the grid (D.S. Nº 020-2013-EM) defining the regulation for tendering process in charge of OSINERG. Under these tenders, private investors will acess a guaranteed market for their electricity as well as long-term preferential tariffs, covered in part with contributions from the Social Inclusion Energy Fund and the Social Electricity Compensation Fund (FOSE).

The GEF project will build upon the first call for tenders to supply electricity with photovoltaic systems in areas not connected to the grid to design and implement the pilot phase of a NAMA focused on off grid renewable energy, as detailed in the project strategy description.

New Sustainable Energy Matrix (NUMES) and Program for a Sustainable & Efficiency Management of Peruvian Energy Resources (PROSEMER)

Peru has developed the New Sustainable Energy Matrix (NUMES) programme, financed by a loan and a technical assistance grant from the Inter-American Development Bank (IADB), This consisted of a strategic study for the energy sector in Peru, with a 30-year timeline, based on a comprehensive approach to technical, economic, environmental, and social considerations, in order to maximize the benefits derived from energy resources in a sustainable manner.

The NUMES is being followed by the PROSEMER; a program being implemented by the Ministry of Economy and Finance (MEF), and financed by the IDB for the implementation of several measures identified in the planning exercise. The program's overall objective is to contribute to a balanced and sustainable management of the energy resources at the national level by strengthening the capacity of institutions to develop regular, inclusive, integrated and systematic energy planning on the long term; improving the efficiency and transparency in the management of public enterprises relevant energy sector; and strengthening the institutional capacity and regulatory framework for the promotion of energy projects, particularly those related to renewable energy and conservation and efficient use of energy. This program will support specific actions to solve identified problems and allow measures to be proposed for the implementation of the New Matrix Sustainable Energy (NUMES) in Peru.

The PROSEMER will be linked directly to the GEF project working jointly to improve skills and knowledge in the methodological, technical, economic, and socio-environmental aspects of energy planning. The GEF project will also work with PROSEMER to enhance coordination of the various government entities involved in energy sector planning, as well as engaging with other key stakeholders of the private sector and civil society. Component 1 of the GEF project will also enhance the capacity of MINEM and MINAM to administer and manage the flow of sector information on GHG emissions in consistency with the PROSEMER activities. Components 2 and 3 of the project will have direct relation with PROSEMER objectives of improving regulatory and institutional framework for promoting renewable energies as well as strengthening the knowledge of specialists at the different levels of the Peruvian government to participate in the development of renewable energy projects and programs.

1.2.3. Stakeholders Analysis

Considering the particularities of the energy generation and end-use sector, a diverse set of stakeholders from the public sector, the private sector and civil society will be involved in the project.

Public sector:

- Ministry of Environment (MINAM) is the governing body and policy maker for environmental management at the national level. The National Climate Change Committee is presided by the MINAM. It establishes the national guidelines for climate change mitigation and is in charge of ensuring fulfillment of the commitments taken by the country in the UNFCCC. Although the project will be implemented by the MINEM, the MINAM will have a key role in the establishment of criteria for the definition of the NAMAs, the development of the NAMA national registry and MRV methodologies (including the design and implementation of the InformaGEI platform) and ensuring an adequate environmental impact of the proposed and implemented mitigation actions. A strong coordination mechanism will be defined between the MINAM and MINEM for the implementation of this project. The distribution of responsibility is further defined in section 4 Management Arrangements.

- Ministry of Energy and Mining (MINEM) is the governing body of the energy policy at the national level. The MINEM will implement this project in coordination with the MINAM. In addition MINEM has been assigned with the administration of the Social Inclusion Energy Fund (FISE) in charge of the promotion of new renewable energy sources in areas non connected to the grid and administrator of the Emission Reduction Compensation Fund part of this project.

- Ministry of Economy and Finance (MEF) defines the national budget and assigns public resources. It has an important role in directing public funds to climate change mitigation actions and ensures that the limited available funding can serve to catalyze investment from the private sector. Considering the key role of MEF in the design and implementation of the Market Readiness Plan under the PMR, and the role of this initiative complementing the proposed project, MEF will have a key coordination role in the integration of both initiatives.

- National Strategic Planning Center (CEPLAN) has the role to impulse strategic and coordinated planning at all the level of the government (national and sub-national). CEPLAN will have a key role to integrate mitigation actions into national and subnational plans.

- Regional Governments are in charge of implementing sectoral policies at the regional level. They will have an important role in identifying, designing and implementing mitigation actions at the sub-national level.

Non-Governmental Organizations:

- Center for the Conservation of Energy and the Environment (CENERGIA) is the technical entity that is supporting the government of Peru in the technical implementation of NUMES. CENERGIA will thus have a key role in the structuring of NAMAs for the energy generation and end-use sector and their implementation.

- National Fund for the Environment (FONAM) is in charge of promoting public and private investment in plans, project and programmes oriented to improve the environmental quality and the sustainable use of natural resources, as well as to strengthen the capacity for an adequate environmental management. FONAM is also the national promoting entity for the CDM. It will have a key role in promoting the participation and investments of the private and public sector in NAMAs.

Private Sector:

- Libelula is a private company that offers climate change consulting services and is the technical entity in charge of implementing the Project MAPS CCPlan.

- Associations representing companies of the private sector related to energy such as the National Society of Energy and Petroleum, the National Society of Industries, the National Confederation of Private Company and the Chamber of Commerce will have an important role in the design of the NAMAs and promoting the participation of its members in their implementation.

2. PROJECT STRATEGY

2.1.Rationale and Scope

Peru's commitment to promoting and implementing a low emission development course is clearly expressed in the voluntary emission reduction targets presented to the UNFCCC. The country's NAMA targets demonstrate that the country intends to implement a low carbon development strategy that is aligned to the country's sustainable development goals. This requires mainstreaming emission reductions efforts across multiple sectors and identifying effective means to decouple economic growth from increasing GHG emissions.

Since presenting its NAMA targets, the Government of Peru has been in the process of structuring a national institutional and legal framework for NAMA implementation. Incorporating emission reduction measures into national planning and implementation processes is a major challenge, and the baseline efforts outlined in the previous section are important contributions to achieve this objective. However, additional efforts to further strengthen the human, institutional and systemic national capacities are needed to transform the country's goals into reality.

The GEF project is embedded into this broader context to support the country in designing and implementing its energy sector related NAMA activities. The energy sector is responsible for more than 20% of the national total GHG emissions[4]. Given that one of the most relevant national voluntary pledges towards reducing GHG emissions is to modify the national energy matrix so that non-conventional renewable energy and hydro energy can represent at least 40% of the total energy consumed in the country by 2021, the energy sector is considered as the one with greatest potential to reduce the country's current GHG emissions pattern.

During the project preparation phase, the Government of Peru and UNDP arrived at the conclusion that the project would be more effective with a narrower focus that would allow for more depth, rather than a broad sectoral approach that would cover the entire spectrum of energy related activities. An energy sector assessment was conducted to prioritize the sub-sectors that are the most ready for in depth NAMA design and implementation. This exercise was conducted in a fully participative manner with numerous stakeholders, and the key

[4] National GHG inventory (2000).

parameters assessed were: (a) mitigation potential; (b) Alignment with government priorities (and relevant policies in place or planned); (c) Existing or planned actions that can be used as building blocks for proposed actions; and (d) National benefits linked to sustainable development (economic, environmental and social) and adaptation to climate change. A full description of the priority setting exercise can be found in Annex 7.5

As a result of this exercise, two far-reaching sub sectors have been selected by the Government of Peru to be the focus of this project. These are (i) renewable energy connected to the grid (all technologies excluding large hydro) and (ii) off grid renewable energy. A full description of these sub sectors, their mitigation potential and current barriers is presented in Annex 7.6. Focusing on these two sub sectors allows the project to cover the entire spectrum of renewable energy generation in the country, focus on a narrower and more well defined set of stakeholders and institutions, and conduct a deep analysis of mitigation options within the sub sectors. As a result, the project will generate well defined, operationally viable NAMAs for on and off grid renewable energy generation, and will be able to pilot the implementation of four NAMA activities.

The project will support the Government of Peru in two processes; the prioritization, design and structuring of energy sector related NAMAs in the selected sub-sectors and the implementation of emission reduction activities in the energy sub-sectors within the NAMA framework. Both processes are fundamental to support the ongoing NAMA process in Peru. The prioritization, design and structuring phase will allow the country to identify the most effective measures within the energy sector that can result in emission reductions within the national development framework. It will also support the development of an institutional and legal framework that promotes GHG emission reductions and creates the conditions for accurate and reliable MRV. The implementation phase will work with the government to ensure that current and planned low emissions energy related activities are incorporated into a NAMA framework that results in direct GHG emission reductions. This phase will also pilot the implementation of 4 NAMA activities, providing incentives to low emission energy generation projects and implementing the established MRV mechanisms.

NAMA prioritization, design and structure

This aspect of the project will support the Government of Peru in converting its broad energy sector emission reduction targets into specific NAMA activities that foster climate change mitigation, have a clear institutional and implementation framework, and methodically quantify emission reductions. This requires a profound methodological analysis at the sub-sectoral level to define and prioritize specific NAMA activities that have meaningful mitigation impact and can be effectively put into action. Upon identification and prioritization of these activities, institutional and operational mechanisms will be defined for the effective management and operation of the NAMAs. Likewise, the project will define the specific financial, policy, and market-based incentives that support the implementation of the NAMA activities. Finally, the project will also design the Monitoring, Reporting, and Verification protocols for the energy sector NAMAs , building upon the Government's existing monitoring structures (such as results based budgeting) where appropriate.

NAMA implementation support

In addition to the design support described above, the project has the clear objective of supporting NAMA implementation. As such, the project will work with four NAMA activities resulting from the prioritization and design process and work with the Government of Peru in establishing the operational structure, setting in place the appropriate incentives and enabling environment that promote investment in low emission technologies, and piloting NAMA implementation and MRV mechanisms. While the specific NAMA activities to be supported will emerge from the design process, there are already planned activities within the selected energy sub-sector that are fully compatible with the NAMA targets, as well as with government

priorities. Such activities can therefore be fast-tracked to the NAMA design and implementation phase, as the government's commitment to support these activities and the substantial GHG reduction potential allows them to be classified as a priority.

Specifically, the project will build upon the country's planned support to rural electrification with renewable energy technologies through the Social Inclusion Energy Fund (FISE). As mentioned above, the FISE has focused primarily on distribution of LPG, but is planning a large scale process of rural electrification with small scale renewable energy. A tender for the installation of up to 500,000 PV panels is currently under preparation, targeting both public and private investment. This activity is currently not structured as a NAMA and is designed to promote social benefits without directly acknowledging its emission reduction potential. The FISE is also looking to incorporate innovative financing and distribution mechanisms, with the strong involvement of the private sector. The project will build upon this effort to structure an off grid renewable energy NAMA directly linked to the FISE funding and bidding process. This will allow the project to maximize the social and climate change mitigation potential of the effort, piloting innovative mechanisms to promote public/private investment in off grid renewables, and developing and testing mechanisms to perform and register MRV. Likewise, the project will work with the World Bank PMR and IDB's domestic Carbon Market initiatives to support the potential implementation of performance based payment systems, which is one of the options being considered by the Government of Peru to encourage emission reductions at the national level.

Incremental Reasoning

The GEF project's primary added value is to transform Peru's voluntary energy sector mitigation targets into structured, feasible, and implemented NAMAs. This effort will build upon the country's existing NAMA design activities and programs, as well as the numerous energy sector ongoing and planned activities that have significant GHG reduction potential.

At present, while there is a significant level of NAMA related activity, there is no cohesive effort to design and implement NAMAs in the energy sector. While the activities described in previous sections of this document are all contributing to the country's energy mitigation objectives, the approach to date is fragmented, uncoordinated, and inefficient from an emissions reduction point of view. This status quo is unlikely to lead to the mainstreaming of a low emissions energy sector strategy and ultimately, the achievement of Peru's GHG abatement goals.

Therefore, there is a strong need to rationalize the energy sector NAMA process, establishing mechanisms to set priorities, coordinate between multiple stakeholders, and define sustainable institutional mandates and arrangements. This is required at both the design and implementation levels. In the NAMA design phase, it is necessary to conduct a technical assessment of the sector to systematically define priorities and identify the most cost effective and nationally appropriate mitigation measures. This effort needs to be conducted in an engaging manner to ensure that common priorities are defined and appropriated by all stakeholders. The project will not only support the definition of such priorities but will contribute to the development of a NAMA prioritization and design process that allows for continuous multi-stakeholder planning and revalidation or reassessment of priorities.

While several energy sectors related mitigation activities have been implemented in Peru, none of these activities have taken place under a NAMA implementation framework. As such, the process of establishing sub-sectoral mitigation targets and implementing programs directly targeting GHG emission reductions is highly innovative. The project will pilot this approach in four NAMA activities in the energy sector, building upon the project's design results to operationalize the NAMA structure and support the implementation of mitigation related activities. Furthermore, the off grid renewable energy electrification process supported with the FISE funding has been identified as a viable NAMA activity. This allows the project to immediately work on a pilot NAMA activity that is ready to undergo the full design and

implementation process from the onset of the project. In parallel, the incorporation of GHG emission reduction related indicators in the Results-Based Budgeting framework for new programmes structured by the Ministry of Economy and Finance will provide innovative tools to the government of Peru to monitor and encourage the implementation of NAMAs.

The NAMA process is a new concept introduced in the global effort to combat climate change, and its implementation requires significant support and assistance from both domestic and international sources. In addition to establishing nationwide targets, the number of programs and activities undertaken by the Government of Peru demonstrate its willingness to decouple economic growth from increased emissions in the energy sector. Building upon this solid foundation, the project will establish the foundation for energy sector NAMA design implementation in Peru, thus strengthening the country's capacity to implement GHG reduction measures and significantly supporting the achievement of their targets. Overall, the GEF project will allow Peru to convert its GHG emission intentions into action in a structured and coherent manner which will allow the country to establish and monitor energy sector related emissions targets.

2.2.Project Objective, Outcomes and Outputs

The objective of the project is to support the government of Peru in the development and implementation of National Appropriate Mitigation Actions in the energy sector. The project will contribute to the achievement of the energy mitigation targets established voluntarily by the Government of Peru and communicated to the UNFCCC, which aims to modify the national energy matrix so that non-conventional renewable energy and hydro energy represent at least 40% of the total energy consumed in the country.

The project is designed to support both the design and implementation of NAMAs in the energy sector, applying relevant NAMA methodologies and guidance for identifying and designing NAMAs, and piloting the implementation of 4 NAMA activities, including the application of relevant MRV. During the project design stage, two sub sectors were selected as a project focus: (i) renewable energy connected to the grid (all technologies excluding large hydro) and (ii) off grid renewable energy. The project will develop a baseline analysis at the energy sector level, perform a sector wide assessment of mitigation options and identify potential NAMA activities for energy generation and end-use. However, the detailed NAMA design and the implementation of 4 NAMA activities will focus on the two selected sub sectors.

The project is structured into four components, as described below.

2.2.1 Component 1: Business-as-usual GHG emission baseline

Expected Outcome: Established national and regional GHG emission BAU reference baseline for the energy sector

This Component will support the development of the GHG emission inventories and business-as-usual (BAU) baselines of the energy sector. A reference scenario of historical and projected GHG emissions will be prepared at the sub-sectoral and regional levels and will constitute the baseline against which mitigation potential will be measured for the design and implementation of NAMAs, and from which emission reductions will be monitored during implementation.

Moreover, an operational national and sub-national GHG inventory system (GIS) for the energy sector will be established. This system will provide the energy sector data for the Peruvian Data Generation Network for the National Inventory of Greenhouse Gases (InformaGEI), that the MINAM is currently developing and will contribute the National Energy Balance Reports to be developed by the MINEM. The sub-national energy GHG inventories will contribute to the decentralization process for the planning and implementation of mitigation actions through the

25 regional governments, in line with GoP's decentralization strategy.

The GIS for the energy sector, disaggregated at a sub-sectorial and sub-national level, will allow to gather in a timely manner more consistent and reliable data that will enhance and complement the National GHG Inventories and facilitate the preparation biennial update of the data for the energy sector that will be required from December 2014 onward to complete the UNFCCC Biennial Update Reports (BURs). It must be noted that the information presented in the National Communications and BURs is gathered at the sectoral and national levels, therefore this project will allow the country to generate much more specific inventories at the sub sectoral and regional levels. Key information gaps, bottlenecks and weaknesses in climate change information management of the energy sector will be identified and addressed.

To identify historical GHG emissions and perform projections, two approaches will be used. A detailed bottom-up assessment for the energy sub-sector and top-down economy-wide tools will be applied, such as general equilibrium and emission models, including the use of IPCC protocols and the National Energy Balance developed by MINEM. The results of these two approaches will then be presented for local validation and assessment to ensure the forecast is realistic.

The GIS for the energy sector will also facilitate the generation of a formal Emission Grid Factor for Peru that will be updated and officialised on a yearly basis. For this purpose the UNFCCC CDM methodological tool to calculate the emission factor for an electricity system will be used, and a system will be put in place for its yearly update. In addition, a standardized baseline will be established for the off-grid power generation, including a positive list of additional technologies.

The following Outputs will contribute to achieve Outcome 1:

Output 1.1 Established and operational national and sub-national GHG inventory system for the energy sector, integrated with the InformaGEI platform.

Output 1.2 Established national and sub-national GHG inventories for the energy sector.

Output 1.3 Defined and established national and regional GHG emissions BAU reference baselines for the energy generation and end-use sectors and sub sectors.

Output 1.4 Established Grid Emission factor, including a regular update system, and standardized baseline for off-grid power generation

2.2.2 Component 2: Mitigation options for the energy generation and end-use sectors

Expected Outcome: Prioritized mitigation options and MACCs are identified, NAMA Design Documents are developed in the selected sub-sectors (new renewable energy sources both connected and non-connected to the grid), and 4 NAMA activities are ready for implementation.

This Component will support the Government of Peru in identifying appropriate mitigation options and implementation mechanisms (actions, instruments and tools) for the identification, development and implementation of NAMAs. A broad assessment of mitigation options at the sub-sectoral level will be conducted across the energy generation and end-use sectors, which will serve as a reference for the design of NAMAs for the energy sector. The detailed sub-sectoral assessment and NAMA design will focus on the sub-sectors selected during the project

design phase (non-conventional new renewable energy sources, both grid-connected and off-grid) to identify the NAMA activities that contribute most effectively to the achievement of the established national voluntary mitigation target and national development goals.

Detailed marginal abatement cost curve (MACC), will be prepared, including a cost-benefit analysis of the available options as well as a feasibility analysis of their implementation. Based on this top-down analysis a NAMA identification and prioritization process will be performed, divided into two sub-steps:

- A NAMA Rapid Screening Methodology, which aims at identifying the most promising mitigation actions from a long list of suitable options. This exercise will generate a short list of potential NAMAs to be developed.

- A NAMA Detailed Screening Methodology, which will carry out a more detailed assessment of the shortlisted NAMA candidates to prioritize and score them against evaluation criteria which consist mainly in the following:

    - GHG ER potential (mitigation potential or environmental effectiveness);
    - GHG ER / USD, cost per ton of CO2eq avoided (cost-effectiveness or economic effectiveness);
    - Technical feasibility
    - Financial feasibility (including barriers to public and private finance)
    - Legal/regulatory/political viability
    - Co-benefits for sustainable development (socio-economic, environmental, etc.) beyond GHG ER.

This step will result on a list of prioritized NAMAs, NAMA factsheets, and the selection of the four NAMAs to be fully designed in the two selected sub-sectors: (i) renewable energy connected to the grid (all technologies excluding large hydro) and (ii) off grid renewable energy.

The prioritization process will incorporate a multi-criteria assessment (MCA) methodology to ensure the alignment with the national priorities of the country. Weightage of each prioritization parameter will be consulted with government officials from MINAM, MINEM and MEF. A complete and comprehensive analysis of the impact of the mitigation options on sustainable development, socio-economic aspects and climate resilience impacts (co-benefits), as well as a full barrier analysis will be undertaken for the prioritized mitigation options.

The prioritization process will also make use of UNDP tool “Derisking Renewable Energy Investment[5]” (DREI) which assists policymakers to quantitatively compare the impact of different public instruments to promote renewable energy. This will allow the identification of actions that can be converted into NAMAs to address the barriers that increase the financing cost of renewable energy in Peru and to lower life-cycle costs, making renewable energy technologies more competitive. This analysis will strengthen the selection of adequate instruments for the implementation of renewable energy connected to the grid NAMAs.

Fact sheets for each potential NAMAs identified and prioritized will be prepared and gathered in a database, and uploaded in the UNFCCC NAMA registry when appropriate. The national database will serve as the basis of information on mitigation actions for the energy sector in Peru and will provide information for project developers and national and international financial institutions.

[5] http://www.undp.org/drei

From this prioritization process 3 additional NAMAs will be defined in addition to the fast tracked NAMA for the rural electrification with small scale renewable energy which has been included in this project ex-ante.

The detailed design of the NAMA will include the selection of the mitigation actions, the establishment of the baseline, the definition of the boundaries (geographic and energy sub-sector), the evaluation of the emission reduction potential, the evaluation of the benefit potential (including the identification and measurement mechanisms for key performance indicators of outputs and outcomes for the population), the establishment of the timeframe to achieve the projected emission reductions, the definition of the monitoring methodology, the selection of the appropriate instruments for its implementation and the evaluation of the required financial architecture and funding from different sources.

Full NAMA Design Documents will be prepared for the four selected NAMAs, using the NAMA template proposed by the UNFCCC, UNEP Risoe and UNDP in the Guidance for NAMA Design recently published (November 2013)[6]. The proposed NAMA design template includes the following sections:

- A.1 Summary
- B.1 Information of NAMA Proponents - Provide details of each NAMA proponent separately by copying this Section B.
- B.2 NAMA Collaborator(s) - Provide details of the agencies / institutions collaborating with NAMA proponent(s) in NAMA design, development, implementation and financing (domestic institutions or international Donor).
- C.1 Policies and Regulations - Provide an overview of the prevailing policies and regulations in the sector chosen for the NAMA
- C.2 Current level of activities (Baseline) - Provide all relevant information and details of the on-going activities for establishing a credible baseline
- C.3 Baseline activity and emissions - Provide a brief of business as usual scenario of the sector / sub-sector and latest emissions data set with sources
- C.4 Barriers - Provide a brief description of the barriers faced by the sector / sub-sector to achieve any or additional GHG emission reductions in the absence of the NAMA
- C.5 Proposed activities - List the activities and expected outcomes with a tentative time-schedule under the NAMA
- C.6 Estimation of annual GHG emission reductions - Provide an approximate estimate of annual GHG emission reductions anticipated to be achieved under the NAMA from all the proposed activities on a cumulative basis.
- C.7 Overall benefits - Describe the overall expected benefits (both quantitative and qualitative) for the stakeholders from the implementation of the proposed activities under the NAMA in the targeted sector / sub-sector.
- C.8 Life time and Crediting Period - Provide the technically defined life time of project and the proposed crediting period for generation of GHG emission reductions. For crediting period more than 10 years indicate (If possible) whether the baseline will be adjusted before the start of second crediting period
- C.9 Measuring, Reporting & Verification - Provide a brief summary of MRV concept and approach for the proposed activities under the NAMA
- C.10 Costs (USD) - Provide an estimate of the transaction costs for NAMA development and indicate the means of financing
- C.11 NAMA Investment & Means of Finance (USD) - Provide an estimate of the NAMA project activity (fill up the columns as applicable)

[6] https://unfccc.int/files/cooperation_support/nama/application/pdf/guidance_for_nama_design_(2013)_final.pdf

- D.1 Other information - Provide details of any other information relevant to the NAMA implementation

The design of NAMAs, operational arrangements and corresponding MRV systems will require a strong capacity and readiness of large set of diverse stakeholders, including civil society, the private sector, professional associations, academics, sub-national governments and public institutions. The participation of these stakeholders in the NAMA development process is essential to ensure that the NAMAs are designed with full consideration of national circumstances. The project will strengthen the capacity of the required stakeholders in the design and implementation of mitigation programmes and the identification of funding sources and options, as well as MRV requirements.

The NAMAs Design process will be both systematic and practical; presenting a framework that will put together the main NAMA elements in a realistic and operational way, useful and attractive to the end-user (i.e., assisting the implementers in meeting the NAMA funding and implementation targets, and proving an effective mean of engaging all the stakeholders mentioned above). This systematic, step-wise approach is strongly advisable, and is found in successful mitigation programmes and NAMA design exercises around the world[7]. Furthermore, a very practical, hands-on approach that is focused on the daily challenges faced by those who will work on the ground will be paramount to ensure a successful implementation.

Updates on the evolution of the international, regional and national frameworks for climate change mitigation and the carbon market will be provided to the public and private sector to raise awareness of the evolution of the national and international frameworks, and to adapt their mitigation programmes and actions in line with the evolution of guidance and requirements. A systematic programme of workshops, materials and outreach will be developed to build awareness and technical capacity inside governments and the industry.

The following Outputs will contribute to achieve Outcome 2:

Output 2.1 Developed and published energy marginal abatement cost curve (MAC curve) identifying cost effective mitigation actions at the energy generation and end-use sectors and sub sectors, and detailed marginal abatement cost curves (MAC curves) for mitigation actions in the selected sub-sectors[8].

Output 2.2 Completed factsheets for potential NAMAs in the energy generation and end-use sectors and sub sectors.

Output 2.3 Identified and prioritized mitigation options to develop and implement NAMAs for the selected sub-sectors, based on the MAC curves, MCA, barriers and co-benefits analysis.

Output 2.4 Completed comprehensive barrier analysis for mitigation options identified for the selected sub-sectors.

Output 2.5 Comprehensive sustainable development and climate resilience impact (co-

[7] See KfW PoA to NAMA study: http://www.mitigationpartnership.net/south-pole-2011-how-develop-nama-scaling-ongoing-programmatic-cdm-activities-road-poas-namas.

[8] All mentions of the "selected subsectors" refer to the two sub sectors chosen during the project preparation phase as the focus of this project. They are (i)renewable energy connected to the grid (all technologies excluding large hydro) and (ii) off grid renewable energy

benefits) analysis for mitigation options identified for the selected sub-sectors.

Output 2.6 Fully capable and qualified entities in the private and public sectors for the design of and implementation of GHG emission mitigation programme.

Output 2.7 Established and validated national voluntary emission reduction targets for the selected NAMAS.

Output 2.8 Defined NAMA Entity, including fully capable and qualified entities in the private and public sectors for the implementation of GHG emission mitigation actions, as well as an operational and financial scheme for the selected NAMAs

Output 2.9 Designed NAMAs for implementation of mitigation actions in the selected sub-sectors.

2.2.3 Component 3: Implementation of NAMAs in the selected sub-sectors.

Expected Outcome: Entities related to renewable energy connected to the grid (all technologies excluding large hydro) and (ii) off grid renewable energy sub-sectors are implementing prioritized NAMAs in a piloting phase and contributing to the achievement of Peru's voluntary mitigation target.

From the results of Component 2, selected prioritized mitigation actions designed into NAMAs will be further structured into full operational NAMAs, including the establishment of the instruments to be used for their implementation and the formalization of the institutional arrangements. The best policy, regulatory and financial tools and instruments mix to support the implementation of the identified mitigation actions will be established. The instruments to be assessed will include fiscal incentives, feed-in tariffs, concessional credits, guarantee facilities, knowledge and information transfer and other mechanisms that can promote mitigation actions. A policy dialogue process on the potential instruments for the implementation of NAMAs in the selected sub-sectors will be supported to ensure a broad stakeholder participation in the selection of appropriate policies supportive of NAMAs.

NAMAs will be structured and implemented in the two selected sub-sectors: renewable energy connected to the grid (all technologies excluding large hydro) and (ii) off grid renewable energy sub-sectors as described below:

Support to off-grid renewable energy NAMA implementation

The Universal Energy Access Plan 2013 – 2022 demonstrates that off grid electrification with renewables is a priority of the Government of Peru. Furthermore, as described in the baseline section of this document, the Social Inclusion Energy Fund (FISE) provides funding for the government's off grid electrification programs. The implementation of such programs is led by the National Energy and Mining Regulator (OSINERGMIN) jointly with the Ministry of Energy and Mines (MEM). While, to date, the program has focused on the distribution of LPG, as of 2013 there is a clear mandate to launch programs that promote off grid electrification with renewables. This is a unique opportunity to ensure the proper implementation of such programs within a NAMA framework.

The GEF project will support the implementation of off grid renewable energy NAMAs by three means:

a) Assessing and designing performance based payment systems to disburse the FISE funding for off grid electrification with renewables;

b) Supporting the implementation of MRV systems to ensure the proper operation of the installed RE systems throughout their lifetime, and;
c) Ensuring that the established MRV systems meet the required criteria for the established performance based payment system and any future domestic voluntary carbon market.

The FISE is already working on developing terms and bidding procedures for an off grid renewable energy program with PV panels, which is expected to deliver 500,000 PV systems in isolated rural areas. This is a public/private venture, in which private companies will be responsible for the installation and operation of PV systems and will in turn receive a public subsidy from the FISE, in addition to a fee paid by end users. The project will work with OSINERGMIN to structure the upcoming bidding process in a way that the public subsidy is disbursed to the participating companies only upon compliance of the MRV system established in the NAMA framework. The MRV will be fully aligned to the proper operation of the equipment; in other words, the FISE will only pay a subsidy that complements the user fee for systems that are fully operational. This will provide incentives for the private partners to ensure and demonstrate the proper maintenance and use of the installed equipment.

Establishing a performance based mechanism addressed a key weakness that is historically encountered in this type of project, which is the proper maintenance and use of equipment to ensure its operation throughout its full lifetime. However, to ensure the reliable implementation of MRV mechanisms, there is a need for OSINERGMIN to increase its capacity to verify the proper operation of the RE systems, in addition to relying on the private partner's performance reports. The GEF project will provide funding to strengthen OSINERGMIN's capacity to independently monitor its off grid projects by establishing an MRV unit for off grid rural electrification. This will be comprised of decentralized data gathering systems implemented at the community level, and complemented with a central information processing system. GPS and cellular technology allows for low cost and efficient gathering and processing of data, which will allow end users to independently report poor performance, document malfunctions, and trace the maintenance performance of the private providers. The decentralized administration of the system will build upon existing service networks and community arrangements for the provision of data, supported by periodic independent field visits by OSINERGMIN representatives to ensure compliance. The GEF project will support the establishment of the MRV network in a pilot scheme associated with upcoming OSINERGMIN bids, and upon demonstration of success will work on incorporating the MRV costs into the financing structure of future similar bids, thus mainstreaming the process into the off grid RE program.

Finally, the establishment of off grid renewable energy programs allows the government to pilot the implementation of a domestic voluntary carbon market. This activity will work hand in hand with the ongoing process of assessing the viability of a national carbon market, led by IDB and the Ministry of Finance. The concept of a domestic carbon market includes a proposal for emission trading schemes and offers a demand analysis, including verification mechanisms. This market is expected to target the mining, energy, manufacture and agro industrial sectors as potential sectors for demand generation, having the energy (renewable sources and energy efficiency) and forestry sectors as providers of compensation credits. Companies in the mining and service sectors are already buying credits coming from local projects to compensate their emissions as part of their voluntary targets. However, a nationally recognized transaction system would reduce the uncertainty and the costs related to this kind of transaction, improving the demand and allowing sector other than the forestry sector to access this opportunity.

The existence of a state funded off grid renewable energy program with established MRV mechanisms offers the opportunity for the Government of Peru to pilot the implementation of such a system. Building upon the standardized baseline developed in component 1, the NAMA will include a clear methodology to precisely quantify GHG emission reductions. A pilot scheme will be developed to issue domestic voluntary credits based on this activity, building upon the

internal demand that already exists in Peru. While the project will not take the lead in designing a domestic carbon market, it will be a source of reliable carbon credits and will work closely with the Ministry of Environment in the creation of a system where those credits can be registered and commercialized. Any revenues generated from these credits can be utilized to strengthen the MRV of the NAMAs, thus reinforcing the sustainability of the programme. It is important to note that, as a voluntary internal market, the creation of domestic carbon credits will not impact the overall GHG emissions inventory of Peru and therefore the GEF support will result in absolute emission reductions at the global level.

The upcoming bids for off grid electrification for PV will be the first pilot NAMA activity to be supported by the project. The second off-grid NAMA activity to be supported by the project, emerging from the NAMA identification and design phase, is expected to require similar assistance, in particular regarding the implementation of MRV. The specific support to be provided will be tailored accordingly based on the final NAMA architecture.

Support to renewable energy connected to the grid NAMAs implementation

The Government of Peru is promoting the increasing participation of non-conventional renewable energy connected to the grid through tender processes implemented by OSINERGMIN as described in Section 1. The initial objective is to achieve a 5% participation of non-conventional renewable energy in the grid. As described in Annex 7.6, despite the incentives put in place and the substantial renewable resource availability, to date the participation of renewable energy, excluding large hydro, is less than 1.5% of the total energy matrix. Hence, the project support to NAMAs will seek to enhance the implementation of such incentive mechanisms, develop new policy and finance support measures, and address the barriers restraining the development of grid connected renewable energy .

The GEF project will support the implementation of renewable energy connected to the grid NAMAs by two means:

a) Designing and implementing public policy and finance instruments to promote renewable energy investments
b) Ensuring the implementation of MRV for GHG emissions reductions
c) Piloting international crediting mechanisms for NAMAs

Through the application of UNDP methodology Derisking Renewable Energy, in Component 2, a set of public instruments to promote renewable energy investments in Peru will be identified and structured into prioritized NAMA. The GEF project will promote the detailed design of the identified policy and financial instruments as applicable to the specific NAMA context. Likewise, the project will support barrier removal activities which will be targeted to specific technologies, geographical locations, and institutional capacities. As opposed to the strategy for off grid sub-sector, the support for the grid connected NAMAs is composed primarily of technical assistance and capacity development, with the objective of strengthening the country's renewable energy policy and regulatory framework, and addressing existing distortions that favor fossil fuels. A key aspect of the project will be to work jointly with OSINERGMIN and the MEM to revise the renewable energy tender structure to make it more attractive to project developers.

The GEF project will also support the implementation of the designed MRV protocols for grid connected renewable energy generation, including them in the existing tender process for non-conventional grid connected renewable energy, and designing incentive schemes as necessary. Unlike the off grid subsector, the implementation of MRV is not expected to be a significant challenge, since the energy dispatch registry will be the basis for monitoring grid connected renewable energy generation. However, it will be important to make the appropriate links between the energy sector and the NAMA oversight structure to ensure full alignment with MRV

protocols. This activity is expected to consist primarily of training and capacity development, building upon the MRV design developed in Outcome 4.

The implementation of grid connected NAMAs will also allow for the structuring of a pilot sectoral crediting mechanism. This mechanism will require the establishment of sectoral targets and dynamic baseline levels. Under a sectoral crediting mechanism, a sectoral emission target (set significantly below the business as usual (BAU) emissions), will be established, to be accomplished in a given timeframe through the implementation of domestic policies implemented by the government of Peru. Through an agreement previously established with an Annex I country, the Government of Peru may issue, at the end of the period agreed (ex post), carbon credits for any additional emission reductions below the established targets. This approach is an effort to move beyond project-based offsetting mechanisms such as CDM.

Lessons learned

An important aspect of this project is the learning by doing component. The international framework for climate change is in constant evolution and NAMAs are a central part of discussions of the future framework. This project will produce key bottom up knowledge on the requirements for effective NAMA implementation and will generate important lessons for the international community as the process of defining international guidance for NAMAs and MRV continues to evolve.

Output 3.1.	Developed and enforced national action plans for the implementation of each selected prioritized NAMA in the selected sub-sectors.
Output 3.2.	Established and operational multi-sectoral policy dialogues on potential instruments for the implementation of prioritized NAMAs.
Output 3.3.	Defined and approved financial architecture for each NAMA based on a balance mix of policy and/or financial tools to support the implementation of the prioritized NAMAs, including fiscal incentives, feed in tariffs, concessional credits, guarantee facility or other options.
Output 3.4.	Established and operational Institutional arrangement and NAMA set-up, considering coordination mechanisms between MEF, MINAM and MEM and selected stakeholders.
Output 3.5.	Established public/private partnerships for the implementation of prioritized NAMAs.
Output 3.6.	Established and operational mechanisms for the implementation of prioritized NAMAs for the selected sub-sectors
Output 3.7.	NAMA piloting phase under implementation for the selected sub-sectors.
Output 3.8.	Analyzed, published and disseminated lessons learned from the detail design and piloting of the prioritized NAMAs.

2.2.4 Component 4: MRV system and national registry for mitigation actions in the energy generation and end-use sector

Expected outcome: Accurate mechanism for measurement and accounting of actual GHG emission reductions from mitigation actions in the energy generation and end-use sector are in place.

As part of the process of establishing NAMAs, the MINAM, as the governing body in Peru for climate change, will be in charge of setting a national registry mechanism for mitigation actions. The registry will be linked to the database of potential mitigation actions that will be established through the component 2 and will be integrated and coordinated with the InformaGEI. A specific

section of the registry will be for actions implemented in the energy sector. Close coordination will be carried out between the MINEM and the MINAM in the establishment of the registry of mitigation actions for the energy generation and end-use sector.

An MRV committee will be established for NAMAs in the energy sector will be established, with the responsibility of defining protocols and providing guidance on measuring, collecting and verifying data, and ensuring the functionality of the national registry. The committee will also identify the specific needs for capacity development of local technical professionals in order to ensure the quality of the MRV of the NAMAs.

Training will be organized on MRV requirements and procedures to enhance technical capacity and ensure the availability of capable and qualified local technical professionals to conduct MRV for NAMAs in the energy sector.

Key parameters to be monitored will be selected, both quantitative and qualitative. This will allow the precise monitoring of the mitigation benefits of the four implemented NAMAs in terms of GHG emission reduction, and additional parameters will be selected to evaluate the co-benefits. A monitoring plan including these parameters will be designed and implemented for the four selected NAMAs in conjunction with the implementation of the mitigation actions through the Component 3.

National MRV guidelines and standard methodologies for the selected NAMAs will be developed, including the following guidance:

- Activities and outcomes subject to MRV – Guidelines on how to define activities and expected outcomes that will be subject to MRV.
- Key indicators – Guidelines on how to select and provide specific and adequate indicators (quantitative or qualitative), and the associated target that will be used to assess the progress towards the results expected of each activity.
- Responsible entity – Guideline on how to define the roles and responsibilities of the entity in charge of applying the indicators for each activity.
- Frequency and measurement details – Guideline on how to define periodicity of monitoring for each indicator, as well as the description of the monitoring procedure.
- Reporting – Guideline of how NAMA activities and results will be reported, proposing reporting forms coherent with the verification process.
- Verification – Guidance on verification of the results achieved by the NAMAs and preparation for third-party verification.

This Component will also support the MEF in incorporating GHG emission reduction related indicators in the Result Based Budgeting framework and develop adequate MRV protocols in particular for the following Strategic Programs: Energy Access in Rural Areas (EP0008), Environmental Management Priorities (EP0009) and Natural Resources Integrated Management (EP0022).

The following Outputs will contribute to achieve Outcome 4:

Output 4.1. Established and operational coordination mechanism between the MEF,

	MINAM and MEM, integrated to the InformaGEI for emission reduction accounting in the energy sector.
Output 4.2.	Defined key monitoring parameters (quantitative and qualitative) for the selected NAMAs, with focus on GHG emission reduction and sustainable development co-benefits.
Output 4.3.	Designed MRV systems for the selected NAMAs, including institutional arrangements, MRV Committees, and monitoring plans.
Output 4.4.	Designed and implemented MRV system for the selected NAMAs, including institutional arrangements and monitoring plans.
Output 4.5.	Developed National MRV guidelines and standard methodologies for the selected NAMAs.
Output 4.6.	Climate change indicators incorporated into Ministry of Finance's Resuts Based Budgeting Program.
Output 4.7.	Established and operational national registry mechanism for mitigation actions.

2.3. Project indicators, Risks and Assumptions

In accordance with the GEF's Focal Area Objectives, the key success indicators of the project are:

Objective 3 - Promote Investment in Renewable Energy Technologies:

- Favourable policy and regulatory environment created for renewable energy investments
- Investment in RE technologies increased
- GHG emissions avoided

Objective 6 - Support enabling activities and capacity building under the Convention

- Adequate resources allocated to support enabling activities under the Convention
- Human and institutional capacity of recipient countries strengthened

For further details about the related targets, see the project's results framework in Section 3.

Risks

The main identified risks to the successful implementation of the project include:

Risks	Rating	Mitigation measure
Political The Government of Peru withdraws its political commitment of voluntary mitigation target.	Low	The Government of Peru has demonstrated a constant commitment that has persisted throughout numerous electoral cycles, including the recent change of government. The formal communication to the UNFCCC establishing initial mitigation targets clearly expresses this commitment to the international community. A high level political involvement will be ensured throughout the implementation of the project and information on the co-benefits of the implementation of the mitigation measures will be broadly communicated to ensure a continuous commitment. The fact that the GoP will host the next CoP (2014) increases its political involvement and reduces the risk even more.
Political Lack of coordination between institutions for political and technical decision-making.	Moderate	Political/technical coordination within the implementing agencies with a clear definition of their roles and responsibilities, staff availability and time allocated will have a significant impact on the project performance. High personnel rotation may delay the project implementation if high-level ownership is not strong. The project directly addresses this risk by working on the creation of sustainable inter-sectoral structures for NAMA implementation, with an emphasis on long term planning processes and the development of regulations to support NAMAs.
Political Lack of sustainability of the adopted financial incentives and other supporting measures	Moderate - Low	Failure to adopt the required legal and regulatory changes, or changes in the existing policies and programs may affect investors' confidence in the proposed NAMAs, affecting the results of the whole project. There is a need to amend damaging tariff policies and create the financial/fiscal incentives to provide a basis for the proposed market promotion activities. Selected sub-sectors and mitigation actions have been selected considering existing initiatives already under implementation by the GoP, including secure implementation funding. In addition the construction of the NAMA structure considers national and sectorial development goals increasing government's ownership of the designed tools and incentives to be used. Finally, the inclusion of the Result Based Approach will help decision makers understand the real impacts of NAMAs on national development.
Political The domestic energy market continues to favour natural gas over renewable energy resources.	Moderate	Peru's significant fossil fuel resources, in particular the recent boom in natural gas development with the exploitation of the Camisea field, have had a significant impact on the increase of the fossil fuel share of the energy matrix of Peru. Therefore, there is a risk that, despite the country's willingness to reverse this trend, market forces and domestic economic conditions will continue to favour natural gas over other renewable resources. The project will confront this risk upfront, providing technically reliable and credible analyses that highlight the costs and benefits of diversifying the energy matrix and supporting renewable energy. It is important to note that the New Sustainable Energy Matrix (NUMES) process being undertaken by Peru ensures that there is a clear national commitment to energy diversification, and provides strong support to the project objectives.
Technical Renewable energy technology for non-connected systems suffer from technical failures due to installation or maintenance issues	Low - Moderate	A robust MRV system and long term incentives related to result based mechanism will create liability on NAMA participants (investors and users) and greater awareness on the importance of using sound technology as well as the implementation of adequate maintenance programs.

Risks	Rating	Mitigation measure
Technical Lack of adequate and reliable data and/or inadequate/non-capacitated human resources	Moderate	Capacity building on data generation and analysis, raising awareness on NAMA participants on the importance of monitoring quality, as well as a robust MRV that facilitates the monitoring process and provide information on successful implementation and results.
Social Impact of Hydro development	Moderate	It is clear that the development of hydroelectric power is a key component of Peru's energy diversification strategy. In this context, it is important to ensure that all social and environmental impacts are fully assessed and that all projects to be developed are fully aligned with national and international standards in regards to hydroelectric development. The complexity of this process implies that some projects may not be developed and others may be delayed. While this poses a risk that the country's energy diversification agenda may be affected, it is essential to ensure that hydropower development is conducted in a sustainable manner and that local social and environmental safeguards are fully implemented. Within the project boundary, this risk is greatly reduced as the project will only support hydro development under 20 MW. Regardless, it is important to ensure that all hydro development included in the NAMA framework is fully compliant with international standards.
Environmental Climate change impacts	Moderate	The country's commitment to developing renewable energy resources may be affected by changing climate patterns. In particular, climate change is having a significant impact on the availability of hydro resources as glacier retraction continues to accelerate and climate variability phenomena such as "El Niño" and "La Niña" are exacerbated. The project will fully coordinate itself with Peru's strong climate change adaptation analytical framework to ensure that climate risks are fully incorporated in the energy generation NAMA framework.

2.4.Expected Global, National and Local Benefits

The development of Nationally Appropriate Mitigation Actions in Peru consists in the identification and implementation of suitable national mitigation options in the energy sector that foster national sustainable development. As such, the project is embedded in a context in which the delivery of national socioeconomic benefits is equally important to the country's contribution to GHG Emission Reductions. The voluntary nature of NAMA development and implementation ensures that the Government of Peru will seek to prioritize mitigation measures that have a clear positive impact on the national economy and are fully aligned with national sustainable development goals. The identification of cost effective mitigation measures, and their implementation as NAMAs will provide a clear demonstration of effective mechanisms to integrate national sustainable development and greenhouse gas mitigation goals. Furthermore, this project forms part of Peru's ongoing process of defining a low emission development strategy, which is a part of a broader process to develop a sustainable, climate-smart development path for the country.

National benefits

The specific dimensions of the socio-economic benefits to be derived from this project will be clearly spelled out as mitigation options analyses are carried about and NAMA designs are

developed. However, the project will fully incorporate the socio-economic dimension in the NAMA design and implementation process. This includes contributing to:

- Increasing security and sovereignty of energy supply at the national level, having high quality access to energy at competitive prices and reducing the impact on natural resources and environment.
- Increasing social equality and reducing poverty, through increased access to quality and affordable energy services.
- Strengthening the Result Based Budgeting program by adding energy and climate change goals and indicators to the program.
- Expanding the electricity frontier, facilitating the execution of rural electricity programs using appropriate and cost effective technologies.
- Facilitating the creation of conditions for sustainable socioeconomic development in rural, isolated villages and country borders by improving the quality of life of the rural population and encouraging the promotion of productive uses of energy.
- Promoting the use of renewable energy sources at the regional level in decentralized generation and distribution systems.
- Promoting the coordination of financing instruments and tools with public and private entities in order to allow better access to economic resources and financing for projects.

Global Environmental Benefits

Direct GHG emission reductions

The direct GHG emission reductions that will be attributed to the project stem from the implementation of the NAMA activities. A challenge is that the precise scope of those 4 NAMAs will only be defined during project execution, so it is not possible to present a precise estimate of the direct GHG emission reductions at this time. However, it is clear that the support provided for the implementation of grid connected renewable energy generation NAMAs consists primarily of technical assistance, while the support for off grid renewable energy NAMAs will be a direct investment in the establishment and operation of the NAMA MRV system. As a conservative measure, the project will only claim direct emission reductions from the off grid NAMA support.

The most direct way of estimating the direct GHG emission reductions associated to off grid RE support is to base the calculation on the pre-selected NAMA activity associated to the off grid renewable energy program with PV panes, whose scope is quite clearly defined. A GHG emission calculation has been conducted, and the full calculations are presented in Annex 7.3. Through an expected installation of 500,000 PV panels over the course of the project, the annual emission reductions are estimated at 43,200 tons of CO_2 eq. Over an estimated 10 year lifespan of the equipment, this would result in 432,000 tons of CO2 equivalent.

We can assume that a second NAMA activity supported by the project will result in a similar volume of GHG emission reductions. This is a relatively conservative assumption, since PV offers the most limited energy service and the support for a second NAMA is likely to support technologies with more abatement potential, such as small hydro or biomass. Using these conservative values, the direct expected CO2 emission reductions resulting from the project would be approximately 962,000 tons of CO2 equivalent. It is important to note that these direct GHG emission reductions will be verifiable through the MRV systems established by the project;

hence at the end of the project lifetime it will be possible to directly verify the progress made towards achieving these targets.

Indirect GHG emission reductions

The indirect GHG emission reductions attributed to the project are calculated based of the expected influence it will have in increasing the share of grid connected renewable energy through the implementation of NAMAs in this sub sector. The project uses a top down calculation approach, estimating the influence the project will have in increasing the share of non-conventional renewable energy (i.e. all technologies excluding large hydro) in the energy matrix. Given that the country is currently in the process of designing and implementing incentives to increase the share of non-conventional renewables to 5%, the calculation is based on the assumption that the project will support the gradual achievement of that target, starting from a baseline participation of 1.48% in 2013. The project assumes an increment of 0.5% participation annually until reaching 5% participation in 2020. Emission reductions are calculated over a period of 10 years, from 2014 – 2023. The GEF causality factor used for the calculation is 40% (Level 2 - "modest and substantial"). Using this calculation, the indirect GHG emissions attributable to the project are approximately 1,600,000 tons of CO2 equivalent. The progress towards achieving these indirect emission reductions will also be recorded using the MRV protocols implemented by the project.

Additional indirect mitigation benefits can be expected from sustained growth of NAMAs in the energy sector during and beyond the project. These will be due to the following factors:

(a) The replication and growth of the 4 NAMAs directly supported by the project,

(b) The project's work on identifying a comprehensive set of cost effective mitigation options, developing preliminary NAMA designs in the energy sector, and identifying potential implementation partners and financing sources, which will lead to the implementation of additional NAMAs.

(c) Long term impact of policy measures, market mechanisms, and instruments to leverage new sources of financing which are designed and implemented by the project, and

(d) The contribution of the project to establish an institutional framework, NAMA protocols and guidelines, and a applicable MRV mechanisms, which will create a favorable context for NAMA implementation.

However, it is not possible to realistically translate these anticipated project achievements into expected GHG emissions reductions. Instead, the project results framework includes indicators to measure the project's contribution in these factors. In some cases, such as the replication of NAMAs, it will be possible to estimate the additional emission reductions triggered by the project. These emission reductions will be clearly recorded and reported to the GEF via the established monitoring and evaluation channels. Once again, the strong focus of the project on MRV will facilitate this task.

2.5.Project Rationale and GEF Policy Conformity

The project is contributing to GEF Climate Change Focal Area Objective 3, "Promote Investment in Renewable Energy Technologies", by recognizing that renewable energy plays a key role not only in reducing the GHG footprint of the Peruvian economy, but also in addressing several national development goals such as a broader energy access, energy security, environmental pollution and sustainable development. In accordance with the adopted strategy, the GEF support under this objective will expand beyond the creation of enabling policy and regulatory tools to promote the implementation of NAMAs promoting on and off grid renewable

energy investments. It will also support market mechanisms to enhance private participation and reduce the delivery risk of GHG emission reduction in selected activities.

In addition, the project contributes to the Area Objective 6 "Support enabling activities and capacity building under the Convention", by contributing to the achievement of the Government of Peru´s voluntary emission reduction pledges to the UNFCCC in the energy sector. The project will strengthen the country's capacity to identify, design, and implement NAMAs, which is crucial for the enhanced engagement of non-Annex 1 parties in the climate change mitigation course of action established in UNFCCC negotiations.

The specific outcomes of the GEF climate change strategy that are addressed by the project include:

- Favourable policy and regulatory environments created for renewable energy investments
- Investment in renewable energy technologies increased.
- Adequate resources allocated to support enabling activities under the convention.
- Human and institutional capacity of recipient countries strengthened.

2.6.Country Ownership: Country Eligibility and Country Drivenness

According to the Instrument for the Establishment of the Restructured Global Environment Facility, Peru qualifies for GEF financing on the following grounds:

- It has ratified the UN Framework Convention on Climate Change; and
- It receives development assistance from the UNDP's core resources.

The objective of the project is consistent with the voluntary commitment of the Government of Peru, presented by the Ministry of Environment in July 2011 to the UNFCCC, to modify the national energy matrix so that non-conventional renewable energy and hydro energy represent at least 40% of the total energy consumed in the country by 2021. Furthermore, it is clearly aligned to the mitigation objectives outlined in the Peruvian Second National Communication on Climate Change (SCNCC), submitted to the UNFCCC COP in September 2010. The numerous ongoing activities supporting the design and establishment of NAMAs, described in the Baseline section of this Project document, clearly demonstrate the country's commitment to develop country driven programs that turn their commitments into reality. The project is immersed into this favorable context, providing highly necessary support to face the challenges of reducing the energy sector's carbon footprint.

As expressed in Section 1 of this Project Document, the project is fully consistent with the country's long term energy policy, as expressed in the National Energy Policy for 2010-2040 and the Universal Energy Access Plan (2013-2022). The country is clearly committed to an energy diversification strategy, which calls for the sustainable exploitation of renewable energy resources and efficient use of energy. The country is implementing a number of favourable policies, financial incentives, and government led programs to support this strategy, which created a favourable environment for both public and private investment in clean energy. This context allows the project to design NAMAs that support and strengthen these initiatives, emphasizing the GHG abatement component of these actions.

2.7.Sustainability and Replicability

Sustainability

The project originates from the Government of Peru's willingness to establish long term climate change mitigation targets, placing it in a stable policy context that strongly favours its sustainability. Furthermore, the concept of NAMAs as a means to engage non-Annex 1 countries in mitigation efforts is entrenched in the UNFCCC discussions and negotiations, providing further stability to the project context. Therefore, the conceptual framework of the project is highly likely to be sustainable, as NAMAs will continue to form a part of UNFCCC discussions and Peru will seek to achieve its voluntary targets.

With regards to the energy sector NAMA identification, priority setting, and design process, the project will undertake an extensive sector assessment from the GHG abatement perspective, strengthening links to national development priorities and identifying cost effective opportunities for NAMA development. This process will define clear links between GHG reduction opportunities and national energy sector priorities, serving as a roadmap for all NAMA activities in the energy sector. There are two key components for the sustainability of this roadmap, which are the capacity to mainstream CC mitigation actions within the energy sector and the capacity to continuously revalidate and reassess priorities. The project directly addresses these two issues.

The NAMA design process will involve key stakeholders from the energy sector and include assessment parameters that are directly linked to national priorities and ongoing or planned programs. The NAMAs will be structured, to the extent possible, within existing institutional frameworks rather than resorting to the creation of new committees. GHG abatement measures will be linked to the government's ongoing procedures and programs, strengthening the mitigation aspects of these programs instead of developing new ones. A clear example of this is the incorporation of collate change mitigation indicators in the Government's ongoing results based budgeting framework.

The establishment of priorities and definition on sector wide NAMAs is not expected to be a static process that established a rigid work plan. The project will create a framework in which the establishment of NAMAs is an ongoing process and can adapt to the country's changing circumstances. The established targets are clear, and, once NAMAs are designed and under implementation their basic framework should not change significantly. However, the process of establishing new NAMAs and adjusting the sector level strategy to achieve its goals should be fluid and allow for the incorporation of new experiences, changes in national conditions, and other unexpected circumstances, The project will seek to establish the conditions for such a continuous planning exercise to ensure that the relevance of the establish energy sector roadmap is maintained across time.

With regards to NAMA implementation, the sustainability of the NAMA activities will be a key parameter both at the design and piloting phase. A factor that strongly favors sustainability is that MRV is the key aspect to the success of any NAMA. Therefore, the establishment of strong MRV systems, linked to performance based payments when appropriate, will be a key element for NAMA implementation. Furthermore, the project will prioritize the implementation of NAMAs that are linked to ongoing or planned government programs, strengthening their GHG emission reduction potential and their capacity to perform MRV. By aligning NAMAs to national priorities, the project will mainstream its actions within a broader development contest, which strongly favors sustainability.

Replicability

The project is designed to establish a sustainable framework for energy sector NAMA design and implementation. This is intended to trigger the process of implementing NAMA activities in the country and to foster the replication of such activities Peru. The project can expect replication at the following three levels:

Pilot NAMA implementation – The project will pilot the implementation of 4 NAMA activities within its execution period. These NAMA activities are expected to have a longer lifespan, and their scope is expected to grow over time. As an example, the project will support the implementation of a robust MRV framework and the operation of a performance based payment system linked to an upcoming bidding process for off grid PV panel installation. This NAMA activity is likely to continue its operation with additional public/private off grid RE programs supported by FISE, and the support provided by the GEF project will support such replication. A similar scenario is expected to occur in other NAMA activities supported by the project.

Additional NAMA implementation – The project invests heavily in identifying and designing NAMAs for the energy sector, of which only 4 will receive direct support by the project. However, there will be a set of additional NAMAs that are supported to the design level and will be ready for implementation. These NAMA activities are expected to progress to implementation, both with national and international support as appropriate. The project will work to identify potential sources of support and financing for these additional NAMAs, as well as identifying appropriate institutions to lead their implementation. A key indicator of the project's replication success, included in the results framework, is an assessment of how many NAMA activities designed by the project are in the implementation phase by the end of the project lifetime.

Definition of new NAMAs – As described in the sustainability section above, the project aims to develop a NAMA planning framework that allows for the development of new NAMA activities in the energy sector. The voluntary targets established by the Government of Peru for the energy sector are ambitious and require significant changes within the sector to be achieved. As such, the establishment of a well-defined institutional setup to prioritize actions and design NAMAs is essential to strengthen the country's efforts to achieve its targets. Likewise, the project's support for the establishment of MRV mechanisms will be replicable across NAMAs and will allow for quality reporting of the country's mitigation efforts. Finally, the project will contribute, along with the other ongoing NAMA design and development efforts (described in the context and baseline sections of this document) to establish a common cross-sectoral NAMA design and implementation framework, including the establishment of procedures, protocols, and institutional arrangements. This collective effort will ultimately result in the mainstreaming of NAMAs in Peru's national development process, which is the decisive factor for the project replication and for steering Peru towards a low carbon development path.

3. PROJECT RESULTS FRAMEWORK

This project will contribute to achieving the following Country Programme Outcome as defined in CPAP or CPD:
Country Programme Outcome Indicators:
Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one):
Applicable GEF Focal Area Objective: GEF-5 FA Objectives: #3 (CCM-3): "Promote Investment in Renewable Energy Technologies"; and #6 (CCM-6): "Support enabling activities and capacity building under the Convention"

Objective/ Outcomes	Indicators	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
Objective: The objective of the project is to support the government of Peru in the development and implementation of National Appropriate Mitigation Actions in the energy sector	Baseline emission trends	GHG inventory developed at sectoral and national level	GHG energy inventory sufficiently detailed at the regional and sub-sectoral levels to define clear baseline conditions for NAMA implementation	Energy sector GHG inventory report	InformaGEI national inventory is established and operational
	Portfolio of NAMAs in the energy generation and end use sectors	No systematic assessment of potential abatement measures in energy sector	Full assessment of mitigation options in energy sector is conducted and portfolio of potential NAMAs is generated	Project documentation and publications	
	Implementation of two NAMAs in off grid renewable energy generation	No NAMAs in the off grid renewable energy sub sector under implementation	Two NAMAs in off grid renewable energy generation fully designed and under implementation (one of which focuses on off grid electrification with PV panels), including implementation of MRV mechanisms	Project documentation, NAMA coordination entity, MRV reports	Off grid renewable energy programs funded by FISE are fully operational throughout the project lifetime
	Implementation of two NAMAs in grid connected renewable energy generation	No NAMAs in the off grid renewable energy sub sector under implementation	Two NAMAs in off grid renewable energy generation fully designed and under implementation including implementation of MRV	Project documentation, NAMA coordination entity, MRV reports	The Government of Peru maintains its policy of increasing participation of renewable energy in the generation matrix

Objective/ Outcomes	Indicators	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
			mechanisms.		
	Establishment and operation of MRV protocols	No systematic methodology for monitoring GHG emission reductions in the energy sector	Fully designed and operational MRV protocols and procedures for NAMAs in the energy sector	MRV registry	The Government of Peru maintains its commitment to monitor, report, and verify its voluntary abatement programs
	Renewable energy generated by on and off grid sources	Grid connected - 1.48% participation of non-conventional RE Generation in National Grid Off Grid – No systematic monitoring of off grid RE generation	Grid Connected: 3.5% participation of non-conventional RE Generation in National Grid by 2018. Off grid – 100 MW additional off-grid generation (50 MW PV, 50 MW other technology)		
	Direct and indirect GHG emissions resulting from the project	N/A	MRV protocols are used to track the following project targets: Direct emission reductions of 962,000 tons CO2 over 10 years Indirect emission reductions of 1,600,000 tons CO2 over 10 years	MRV registry	
Outcome 1: Established national and regional GHG emission BAU reference baseline for the energy sector	One GHG inventory procedure validated by the relevant energy entities and coherent with InformaGEI and the National Energy Balance by 2014.	Nonexistent legal procedure for a formal, solid, credible and periodic GHG emissions inventory system for the sub-sectors part of the project.	Procedure validated, approved and implemented by the second quarter of 2014.	Signed procedure by the responsible entity's representative available in the responsible entity's internal and website database. TUPA of the responsible entity modified.	Internal budget for development of these activities exists or can be arranged from other co-financing institutions for the period of 2014-2021. InformaGEI system available for 2014, avoiding delays in the structuration of the procedure, or delays/modifications in

Objective/ Outcomes	Indicators	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
					the future.
	One final report of an inventory based on the approved procedure divided by sub-sector developed during 2014.	Nonexistent updated GHG emissions inventory per selected sub-sector based on a formal methodology. Non-periodically updated inventory to assess the real emissions and impact of mitigation activities.	Updated inventory based on approved procedure by December 2014 using the latest available and required year information.	Formal reports of the inventory by sub-sector approved and publicly available by the responsible entity in their internal and website database.	Same as above. Delays in the approval of the formal procedure that gives guidelines and target dates to the inventory.
	BAU systematized and publicly available reference baseline reports for the selected sub-sectors during 2014 and for a period no shorter than 2013-2021.	Non-existent updated or systematized national or regional GHG BAU reference baselines.	BAU reference baselines approved and in accordance with procedure and PlanCC outcomes by June 2015.	Formal report of the BAU reference baselines approved and publicly available in the responsible internal and website entity database.	Same as above.
Outcome 2: Prioritized mitigation options and MACCs are identified, NAMA Design Documents are developed in the selected sub-sectors (new renewable energy sources both connected and non-connected to the grid), and 4 NAMA activities are ready for implementation	1 sector wide and 2 sub sectoral MAC curves	Nonexistent mitigation options listed and assessed. Nonexistent MAC curves in the selected sub-sectors.	Format approved by March 2014. Energy sector MAC curve reports and detailed sub sectoral mac curves for on and off grid RE approved by the Project Steering Committee.	MAC curve reports approved and signed by the Project Steering Committee, publicly available.	Clear and consistent financial information is available at the sub sectoral level for analysis
	Portfolio of NAMA activities and NAMA factsheets	No portfolio of energy generation and end use NAMAs in place	Portfolio of NAMA activities at the conceptual design level in place for energy generation and end use.	Project documentation. Peruvian NAMA coordination entity documentation	
	Policy and finance instruments for NAMA implementation in two selected sub sectors defined	No systematic assessment of existing and potential policy and finance instruments for on and off grid RE development in Peru	Specific set of policy and financial instruments defined for supporting NAMAs in on and off grid RE, and residential energy efficiency	Formal report approved by the Project Steering Committee and publicly available.	The Government of Peru maintains its policy of increasing participation of renewable energy in the generation matrix

Objective/ Outcomes	Indicators	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
	3 formal training sessions by sub-sector, related to the design of mitigation programmes,	Training sessions exist in different sectors but are not coordinated, with no major consistency in the people that assist, no systematic evaluation system and no formal methodology for NAMA development process.	Training sessions developed by year 1, including content and evaluation methodology. Two annual training sessions (one per sub-sector) conducted during project lifetime	Approved training session content and information by the NAMA entity. Assistance lists, reports per session and evaluation documents per person.	
	Four NAMA detailed designs in place	No NAMA concepts in any of the selected sub-sectors, therefore no potential GHG mitigation potentials, barriers, benefits, financial resources or responsible determined.	NAMA concepts approved by the Project Steering Committee, based on a list of assessed and prioritized mitigation actions; including financing sources and containing coordinated institutional arrangements, and ready to initiate piloting.	Ministerial resolutions or applicable legal documentation as evidence of the NAMA concept information (internal budget, schedule and activities agreed by the responsible entity or entities involved in the process.)	Strong financial commitment to on and off grid renewable energy by the Government of Peru continues throughout project lifetime
Outcome 3: Entities related to renewable energy connected to the grid (all technologies excluding large hydro) and (ii) off grid renewable energy sub-sectors are implementing prioritized NAMAs in a piloting phase and contributing to the achievement of Peru's voluntary mitigation target.	Implementation of NAMA activity #1 (off grid RE with PV)	Large scale PV program programmed for launch in 2014, but not framed as a NAMA	PV electrification NAMA is fully operational and supports the installation of 500,000 PV panels. Expected installed capacity 50 MW. MRV mechanisms fully in place.	NAMA implementing partner documentation, National NAMA coordination entity reports, MRV registry reports	PV electrification programme does not suffer major alterations in scope or financing
	Implementation of Performance Based Payment System for off Grid RE with PV Systems	Payment mechanisms for off grid PV systems not fully defined, energy and GHG abatement goals not integrated.	Mechanism established for payment upon delivery of off grid PV based energy services, based on independent assessment of compliance with NAMA MRV protocol	Ministry of Energy financial disbursement records, NAMA coordination entity reports	PV electrification programme does not suffer major alterations in scope or financing
	Implementation of NAMA activity #2 (off grid RE)	NAMA activity undefined	Off grid NAMA activity fully operational. Expected installed capacity minimum of 50 MW. MRV mechanisms fully in place.	NAMA implementing partner documentation, National NAMA coordination entity reports, MRV registry reports	FISE continues to support off grid electrification with RE in addition to PV program

Objective/ Outcomes	Indicators	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
	Implementation of NAMA Activity #3 (grid connected RE)	NAMA activity undefined	On grid NAMA activity fully operational. Must track contribution to increasing RE grid participation to 2.5% by end of project and 5% by 2020. MRV mechanisms fully in place.	NAMA implementing partner documentation, National NAMA coordination entity reports, MRV registry reports	The Government of Peru maintains its policy of increasing participation of renewable energy in the generation matrix
	Implementation of NAMA Activity #4 (grid connected RE)	NAMA activity undefined	On grid NAMA activity fully operational. Must track contribution to increasing RE grid participation to 2.5% by end of project and 5% by 2020. MRV mechanisms fully in place.	NAMA implementing partner documentation, National NAMA coordination entity reports, MRV registry reports	The Government of Peru maintains its policy of increasing participation of renewable energy in the generation matrix
	Implementation of MRV protocols and tracking of NAMA related GHG emission reductions	MRV protocols for pilot NAMAs not in place	MRV protocols are used to track the following project targets: Direct emission reductions of 962,000 tons CO2 over 10 years Indirect emission reductions of 1,600,000 tons CO2 over 10 years	NAMA implementing partner documentation, National NAMA coordination entity reports, MRV registry reports	
Outcome 4: Accurate mechanism for measurement and accounting of actual GHG emission reductions from mitigation actions in the energy generation and end-use sector are in place.	MRV protocol designed	No MRV protocols in place	MRV protocols for energy sector NAMAs designed and approved by Steering Committee	Project documentation, steering committee minutes	
	Implementation of energy sector MRV registry	No energy sector MRV registry	Energy sector MRV registry in place	NAMA Coordination Entity documentation	The Government of Peru maintains its policy of achieving its voluntary emission reduction targets through the systematic implementation of NAMAs in the energy sector
	Mainstreaming of climate change mitigation in Ministry of Finance's Results Based Budgeting	Results Based budgeting program in operation with no CC-related indicators	Climate Change related indicators incorporated in ministry of Finance's Results Based Budgeting Program	Results Based budgeting program documentation	Results Based Budgeting continues to be a planning and disbursement tool for the Ministry of Finance

Objective/ Outcomes	Indicators	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
	Program				
	Application of MRV procedures	No MRV procedures in mlace for Energy sector NAMAs	MRV procedures implemented in all energy related NAMA activities	MRV registry reports	

3.1. Total Budget and Work plan

Award ID:	*00077699*	Project ID(s):	*00088316*
Award Title:	Nationally Appropriate Mitigation Actions in the Energy Generation and End-Use Sectors in Peru		
Business Unit:	*PER10*		
Project Title:	Nationally Appropriate Mitigation Actions in the Energy Generation and End-Use Sectors in Peru		
PIMS no.4679	*4679*		
Implementing Partner (Executing Agency)	Ministry of Energy and Mines		

GEF Outcome/Atlas Activity	Responsible Party/ Implementing Agent	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Total (USD)
OUTCOME 1: Established national and regional GHG emission BAU reference baseline for the energy sector	Ministry of Energy and Mines	**62000**	**GEF**	71200	International Consultants	45,000	45,000	0	0	90,000
				71300	Local Consultants	75,000	75,000	0	0	150,000
				71600	Travel	10,000	10,000	0	0	20,000
				74200	Printing and Publication costs	10,000	10,000	0	0	20,000
				75700	Workshops and Meetings	5,000	5,000	0	0	10,000
					sub-total	**145,000**	**145,000**	**0**	**0**	**290,000**
OUTCOME 2: Prioritized mitigation options and MACCs are identified, NAMA Design Documents are developed in the selected sub-sectors (new renewable energy sources both connected and non-connected to the grid), and 4 NAMA activities are ready for implementation.	Ministry of Energy and Mines	**62000**	**GEF**	71200	International Consultants	180,000	150,000	0	0	330,000
				71300	Local Consultants	80,000	80,000	30,000	30,000	220,000
				71600	Travel	10,000	10,000	0	0	20,000
				75700	Workshops and Meetings	5,000	5,000	5,000	5,000	20,000
					sub-total	**275,000**	**245,000**	**35,000**	**35,000**	**590,000**
OUTCOME 3: Entities related to renewable energy connected to the grid (all technologies excluding large hydro) and (ii) off grid renewable energy sub-sectors are implementing prioritized NAMAs in a piloting phase and contributing to the achievement of Peru's voluntary mitigation target.	Ministry of Energy and Mines	**62000**	**GEF**	71200	International Consultants	150,000	150,000	50,000	50,000	400,000
				71300	Local Consultants	200,000	200,000	90,000	90,000	580,000
				71600	Travel	20,000	20,000	20,000	20,000	80,000
				72200	Equipment and Furniture	200,000	500,000	500,000	250000	1,450,000
				75700	Workshops and Meetings	5,000	5,000	5,000	5,000	20,000
					sub-total	**575,000**	**875,000**	**665,000**	**415,000**	**2,530,000**

OUTCOME 4: Accurate mechanism for measurement and accounting of actual GHG emission reductions from mitigation actions in the energy generation and end-use sector are in place.	Ministry of Energy and Mines	**62000**	**GEF**	71200	International Consultants	100,000	100,000	50,000	50,000	300,000
				71300	Local Consultants	100,000	100,000	65,000	65,000	330,000
				71600	Travel	30,000	30,000	45,000	45,000	150,000
				75700	Workshops and Meetings	20,000	20,000	20,000	20,000	80,000
				74200	Printing and Publication costs	0	0	15,000	15,000	30,000
					sub-total	**250,000**	**250,000**	**195,000**	**195,000**	**890,000**
PROJECT MANAGEMENT UNIT	Ministry of Energy and Mines	**62000**	**GEF**	71200	International Consultants		20,000		20,000	40,000
				71300	Local Consultants	20,000	20,000	20,000	20,000	80,000
				72200	Equipment and Furniture	16,000				16,000
				75700	Workshops and Meetings	2,000	2,000	2,000	2,000	8,000
				74599	Direct Project Costs	11,000	11,000	11,000	11,000	44,000
				73500	Audit	3,000	3,000	3,000	3,000	12,000
					Total Management	**52,000**	**56,000**	**36,000**	**56,000**	**200,000**
					PROJECT TOTAL	**1,297,000**	**1,571,000**	**931,000**	**701,000**	**4,500,000**

Category	Budget notes
International consultancy	1
National consultancy and project staff	1
Travel	2
Print/Publications	3
Workshops	4
Equipment	5
Direct Project Costs	6
Audit	7

Budget Notes

1- Summary terms of reference for project staff, local consultancies, and international consultancies can be found in Annex 7.4

2- Estimated travel costs are for internal travel within Peru, taking into consideration the fact that many project implementation activities will be conducted at the regional and local level. Significant levels of co-financing will be used to support the total project travel costs.
Travel of international consultants is included within the international consultancy budget as the procurement process will require international consultancies to include their travel costs within their offers.

3- Project printing and publication costs are kept to a minimum and co-financing resources will be used for this purpose

4- The workshop and consultation budget is designed to support a thorough and continuous stakeholder consultation process throughout the project. Nevertheless, co--financing will be used for this purpose and joint workshops with other programs will be planned to foster collaboration and avoid duplication

5- Equipment costs are primarily allocated to the implementation support provided for NAMAs, particularly for the off grid renewable energy NAMAs. The funds will be invested in equipment to carry out independent MRV for decentralized renewable energy systems. In the case of the planned PV NAMA, this will consist of a centralized

information registry system, a technology package of cellular/GPS technology per administrative unit to monitor system operation, and field equipment for on the ground verification. A specific MRV technology support package will be included in the detailed MRV design for the second NAMA.

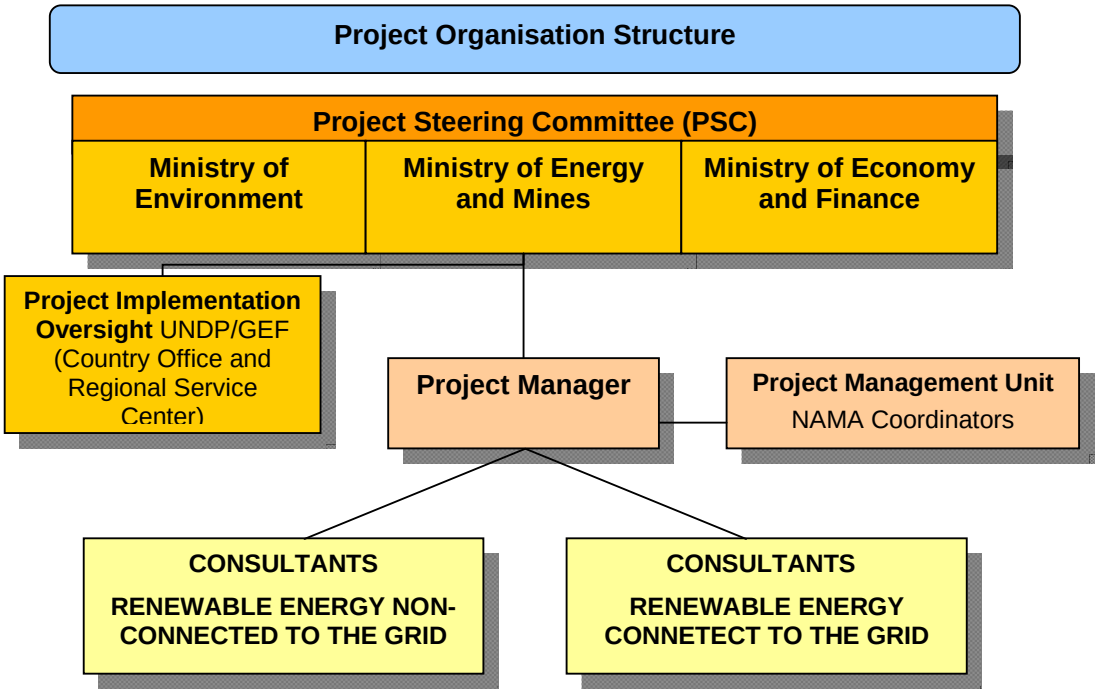
6- Direct project costs – These costs, based on the UPL are agreed between the Government of Peru and UNDP for project execution services above and beyond those covered by the implementing agency fee, please refer to Annex 7.8 for a budget breakdown. LOA to be signed with Gov of Peru.

7- Audit – These are mandatory audit costs. Audit should be done annually as per indicated in the UNDP financial rules and regulations.

3.2.Summary of project co-financing (in USD)

		Ministry of Energy and Mines (MINEM)	Ministry of Environment (MINAM)	Ministry of Economy and Finance (MEF)	UNDP Peru	Total
Outcome 1	Cash		60,000	1,100,000	130,000	**1,290,000**
	In-kind	70,000	20,000		10,000	**100,000**
Outcome 2	Cash		50,000	1,400,000	100,000	**1,550,000**
	In-kind	100,000				**100,000**
Outcome 3	Cash	20,000,000	150,000	5,000,000	70,000	**25,220,000**
	In-kind	200,000	50,000			**250,000**
Outcome 4	Cash		140,000	1,500,000	600,000	**2,240,000**
	In-kind	230,000	30,000			**260,000**
Project management	Cash		200,000	350,000	100,000	**650,000**
	In-kind	200,000	100,000		50,000	**350,000**
Total		20,000,000	600,000	9,350,000	1,000,000	**30,950,000**
		800,000	200,000	0	60,000	**1,060,000**
		20,800,000	**800,000**	**9,350,000**	**1,060,000**	**32,010,000**

4. MANAGEMENT ARRANGEMENTS



The project will be nationally executed by the Ministry of Energy and Mines of the Government of Peru and implemented by the UNDP. The UNDP will be accountable for the disbursement of funds and the achievement of the project goals, in accordance with the approved work plan. The executing agency will assign a senior officer as a National Focal Point to: i) coordinate the project activities with the activities of other Government entities; and ii) certify that the expenditures are in line with the approved budgets and work-plans.

A Project Steering Committee (PSC) will be established at the inception of the project to monitor project progress, to guide project implementation and to support the project in achieving it's listed outputs and outcomes. The Ministry of Environment, the Ministry of Economy and Finance and the Ministry of Energy and Mines will compose this Committee, with the participation of the UNDP as project implementer. Other members can be invited at the decision of the PSC on an as-needed basis, but taking due regard that the PSC remains sufficiently lean to be operationally effective. The final list of the PSC members will be completed at the outset of project operations and presented in the Inception Report by taking into account the envisaged role of different parties in the PSC. The project manager will participate as a non-voting member in the PSC meetings and will also be responsible for compiling a summary report of the discussions and conclusions of each meeting.

A Project Management Unit (PMU) under the overall guidance of the Project Steering Committee will carry out the day-to-day management of the project. The PMU will be established within the Ministry of Energy and Mines and will coordinate its work with the PSC. The Project Manager will report to the UNDP, the executing agency and the PSC. The Terms of Reference of the key project personnel are presented in Annex 7.4 of this Project Document. The project personnel will be selected on a competitive basis in accordance with the relevant UNDP rules and procedures and in consultation with the UNDP-GEF Regional Technical Adviser.

The project manager will be supported by international and national experts taking the lead in the implementation of specific technical assistance components of the project. Contacts with experts and institutions in other countries that have already gained experience in developing and implementing renewable energy policies and financial support mechanisms are also to be established.

UNDP Peru will maintain the oversight and management of the overall project budget. It will be responsible for monitoring project implementation, timely reporting of the progress to the UNDP Regional Co-ordination Center in Panama and the GEF as well as organizing mandatory and possible complementary reviews and evaluations on an as-needed basis. It will also support the executing agency in the procurement of the required expert services and other project inputs and administer the required contracts. Furthermore, it will support the co-ordination and networking with other related initiatives and institutions in the country.

For successfully reaching the objective and outcomes of the project, it is essential that the progress of different project components be closely monitored both by the key local stakeholders and authorities as well as by project's international experts, starting with the finalization of the detailed, component-specific work plans and implementation arrangements and continuing through the project's implementation phase. The purpose of this is to facilitate early identification of possible risks to successful completion of the project together with adaptive management and early corrective action, when needed.

The Government of Peru may enter into an agreement with UNDP for support services in the form of procurement of goods and services during the project implementation process. In such case, appropriate cost recovery will be charged as per UNDP rules and regulations. The support services will be outlined in the form of Letter of Agreement signed between Peru and UNDP. A small budgetary allocation will be allocated in the budget based on calculations for the services to be provided per the UPL. Cost recovery will be done annually and to the budget line indicted in the TBWP.

5. MONITORING FRAMEWORK AND EVALUATION

The project will be monitored through the following M&E activities.

5.1.Project Start

A Project Inception Workshop will be held within the first 2 months of project start with those who were assigned roles in the project organization structure, the UNDP Country Office, as well as the coordinator of the UNDP and relevant stakeholders of the project including public, private and civil society organizations. The Inception Workshop is crucial to building ownership for the project results, to generate agreements related to the objectives of the project and plans the first year annual work plan.

The Inception Workshop should address a number of key issues including:

1. Assisting all partners to fully understand their role and responsibilities in the project context and take ownership of the process. Discuss the roles, support services and complementary responsibilities of the UNDP and the PSU vis à vis the PMU. Discuss the roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff will be discussed again as needed.

2. Based on the project results logic framework, finalizing the detailed first year work plan. This process will help review and agree on the indicators, targets and their means of verification, and re-check assumptions and risks.

3. Providing a detailed overview of the reporting, monitoring and evaluation (M&E) requirements. The Monitoring and Evaluation work plan and budget should be agreed on and scheduled.

4. Explaining and elaborating on the financial reporting procedures and obligations, as well as arrangements for an annual audit if required.

5. Planning and scheduling Project Steering Committee meetings. Roles and responsibilities of all project organization structures should be clarified and the meetings planned according to the milestones defined in the work plan during the first quarter of the project. The first Project Steering Committee meeting should be held within the first 6 months following the inception workshop.

An Inception Workshop report will be drafted and shared with the participants. This document will serve as a key reference document and as a way to formalize various agreements and plans agreed on during the meeting.

5.2.Quarterly

The Project Manager shall report progress made using the reporting format provided by the UNDP.

Based on the initial risk analysis submitted, the risk log shall be regularly updated. Risks become critical when the impact and probability are high. Note that for UNDP GEF projects, all financial risks associated with the financial instruments proposed as part of the project are automatically classified as critical on the basis of their innovative nature (high impact and uncertainty due to no previous experience justifies classification as critical).

The UNDP Implementation Officer will hold quarterly meetings with the PMU, or more frequently if necessary. This will allow the parties to conduct periodic assessments and solve problems related to the project in a timely manner to ensure smooth implementation of project activities.

5.3.Annually

The annual Project Review/Project Implementation Reports (APR/PIR) will be the responsibility of the UNDP Implementation Officer with support from the PMU. This report is prepared to monitor progress made since project start, especially for the previous reporting period. The APR/PIR combines both UNDP and GEF reporting requirements.

The APR/PIR includes, but is not limited to, reporting on the following:

- Progress made toward project objective and project outcomes – each with indicators, baseline data and end-of-project targets (cumulative)
- Project outputs delivered per project outcome (annual)
- Lesson learned/good practice
- Annual Work Plan and other expenditure reports
- Risk and adaptive management

The PMU will develop a detailed program of monitoring and will review meetings, consultations with partners who will implement the project and relevant stakeholders that have been incorporated into the inception workshop report. The schedule will include: (i) tentative agenda for meetings of the Project Steering Committee and other relevant advisory and/or coordination mechanisms if appropriate, and (ii) activities related to M & E of the project.

Day-to-day monitoring of the progress of project implementation will be the responsibility of both the Project Manager and UNDP Implementation Officer, based on the annual work plan and its indicators. The Project Manager will report to the UNDP Implementation Officer any delays or difficulties that take place in the project development, for the adoption of corrective measures in time and support or appropriate remedial actions.

5.4.Mid-term of Project Cycle

The project will undergo a Mid-Term Review by the UNDP at the mid-point of project implementation (July 2015). The Mid-Term Review will determine progress being made toward the achievement of outcomes, and will identify course corrections if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; it will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. The findings from this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization and timing of the mid-term review will be decided after consultation between the parties regarding the project document.

5.5.End of Project

A Final Evaluation Report will be prepared by the UNDP during a three-month period prior to the final Project Board meeting. The final evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the mid-term review, if any such correction take place). The final evaluation will look at the impacts and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefits/goals.

During the last three months, the PMU will prepare the Project Terminal Report. This comprehensive report will summarize the results achieved (objectives, outcomes, outputs), lessons learned, problems met and areas where results may not have been achieved. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the project's results.

5.6.Audit Clause

The audit will be conducted in accordance with UNDP financial rules and regulations and applicable audit policies on UNDP projects.

5.7.Learning and Knowledge Sharing

Results from the project will be shared within and beyond the project intervention zone through existing information sharing networks and forums at the national, sub-national, regional and global levels.

The project will identify and participate, if considered relevant and appropriate, to scientific, policy-based and/or any other networks which may be considered beneficial to project implementation, providing access to lessons learned and contributing to its replicability.

5.8.Communications and Visibility Requirements

Full compliance is required with the UNDP's Branding Guidelines. These can be accessed at http://intra.undp.org/coa/branding.shtml, and specific guidelines on UNDP logo use can be accessed at: http://intra.undp.org/branding/useOfLogo.html. Amongst other things, these

guidelines describe when and how the UNDP logo needs to be used, as well as how the logos of donors to UNDP projects need to be used. To avoid any doubt, when logo use is required, the UNDP logo needs to be used alongside the GEF logo. The GEF logo can be accessed at: http://www.thegef.org/gef/GEF_logo. The UNDP logo can be accessed at http://intra.undp.org/coa/branding.shtml.

Full compliance is also required with the GEF's Communication and Visibility Guidelines (the "GEF Guidelines"). The GEF Guidelines can be accessed at: http://www.thegef.org/gef/sites/thegef.org/files/documents/C.40.08_Branding_the_GEF%20final_0.pdf.

Amongst other things, the GEF Guidelines describe when and how the GEF logo needs to be used in project publications and on vehicles, supplies and other project equipment. The GEF Guidelines also describe other GEF promotional requirements regarding press releases, press conferences, press visits, visits by Government officials, productions and other promotional items.

Where other agencies and project partners have provided support through co-financing, their branding policies and requirements should be similarly applied.

5.9. M & E Work plan and Budget

Type of M&E activity	Responsible Parties	Budget $US *Excluding project team staff time*	Time frame
Inception Workshop and Report	Project Manager supported by an International Expert, PSC, UNDP Peru, UNDP GEF	Indicative cost: $5,000	Within first two months of project start up
Measurement of Means of Verification of project results.	UNDP Peru/Project Manager will oversee the hiring of specific studies and institutions.	Indicative cost, $10,000	Start, mid- and end of project (during evaluation cycle) and annually when required.
Measurement of Means of Verification for Project Progress on output and implementation	Oversight by Project Manager Project team	To be determined as part of the Annual Work Plan's preparation.	Annually, prior to ARR/PIR and to the definition of annual work plans
ARR/PIR	Project manager and team UNDP Peru, UNDP GEF	None	Annually
Periodic status/ progress reports	Project manager and team (PMU)	None	Quarterly
Mid-term Review	Project manager and team (PMU) UNDP Peru, UNDP GEF External Consultants (i.e. review team)	Indicative cost: $20,000	At the mid-point of project implementation.
Final Evaluation	Project manager and team (PMU) UNDP Peru, UNDP GEF External Consultants (i.e. evaluation team)	Indicative cost: $20,000	At least three months before the end of project implementation
Project Terminal Report	Project manager and team (PMU) UNDP Peru External Consultants	None	At least three months before the end of the project
Audit	UNDP Peru Project manager and team (PMU)	Indicative cost per year: $3,000 per 4 years for a total of $12,000	Yearly
Visits to field sites	UNDP Peru Government representatives (PSC)	For GEF supported projects, paid from IA fees and operational budget	Yearly
TOTAL indicative COST Excluding project team staff time and UNDP staff and travel expenses		$US 67,000	

6. LEGAL CONTEXT

This document, together with the CPAP signed by the Government and UNDP, which is incorporated by reference, constitute together a Project Document as referred to in the SBAA. All CPAP provisions apply to this document.

Consistent with Article III of the Standard Basic Assistance Agreement, the responsibility for the safety and security of the implementing partner and its personnel and property, and of UNDP's property in the implementing partner's custody, rests with the implementing partner.

The implementing partner shall:

- Put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;
- Assume all risks and liabilities related to the implementing partner's security, and the full implementation of the security plan.

The UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of this agreement.

The implementing partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by the UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

7. ANNEXES

Annex 7.1. Offline Risk Log

#	Description	Type	Impact & Probability	Countermeasures / Mg response	Owner
1	The Government of Peru withdraws its political commitment of voluntary mitigation target.	Political	P[9] = 1 I[10] = 4	The Government of Peru has demonstrated a constant commitment that has persisted throughout numerous electoral cycles, including the recent change of government. The formal communication to the UNFCCC establishing initial mitigation targets clearly expresses this commitment to the international community. A high level political involvement will be ensured throughout the implementation of the project and information on the co-benefits of the implementation of the mitigation measures will be broadly communicated to ensure a continuous commitment. The fact that the GoP will host the next CoP (2014) increases its political involvement and reduces the risk even more.	Project Steering Committee
2	Lack of coordination between institutions for political and technical decision-making.	Political	P = 2 I = 4	Political/technical coordination within the implementing agencies with a clear definition of their roles and responsibilities, staff availability and time allocated will have a significant impact on the project performance. High personnel rotation may delay the project implementation if high-level ownership is not strong. The project will work in high-level agreements, long-term contracts with professionals, strong focus on communication, planning and regulatory changes reducing this risk.	Project Steering Committee
3.	Lack of sustainability of the adopted financial incentives and other supporting measures	Political	P = 2 I = 4	Failure to adopt the required legal and regulatory changes, stop-go-stop dynamics and changes in the existing policies and programs may affect investors' confidence in the proposed NAMAs, affecting the results of the whole project. There is a need to avoid damaging "stop-go-stop" dynamics tariffs and the financial/fiscal incentives to provide a basis for the proposed market promotion activities. Selected sub-sectors and mitigation actions have been selected considering existing initiatives already under implementation by the GoP, including secure implementation funding. In addition the construction of the NAMA structure considers national and sectorial development goals increasing government's ownership of the designed tools and incentives to be used. Finally, the inclusion of the Result Based Approach will help decision makers understand the real impacts of NAMAs on national development.	Project Steering Committee
4	The domestic energy market continues to favour natural gas over renewable energy	Political	P = 2 I = 3	Peru's significant fossil fuel resources, in particular the recent boom in natural gas development with the exploitation of the Camisea field, have had a significant impact on	Project Steering Committee

[9] Probability from 1 (low) to 5 (high)

[10] Impact from 1 (low) to 5 (high)

#	Description	Type	Impact & Probability	Countermeasures / Mg response	Owner
	resources.			the increase of the fossil fuel share of the energy matrix of Peru. Therefore, there is a risk that, despite the country's willingness to reverse this trend, market forces and domestic economic conditions will continue to favour natural gas over other renewable resources. The project will confront this risk upfront, providing technically reliable and credible analyses that highlight the costs and benefits of diversifying the energy matrix and supporting renewable energy. It is important to note that the New Sustainable Energy Matrix (NUMES) process being undertaken by Peru ensures that there is a clear national commitment to energy diversification, and provides strong support to the project objectives.	
5	Renewable energy technology for non-connected systems suffer from technical failures due to installation or maintenance issues	Technical	P = 3 I = 4	A robust MRV system and long term incentives related to result based mechanism will create liability on NAMA participants (investors and users) and greater awareness on the importance of using sound technology as well as the implementation of adequate maintenance programs.	Project Management Unit (PMU)
6	Lack of adequate and reliable data and/or inadequate/non-capacitated human resources	Technical	P = 2 I = 5	Capacity building on data generation and analysis, raising awareness on NAMA participants on the importance of monitoring quality, as well as a robust MRV that facilitates the monitoring process and provide information on successful implementation and results.	Project Management Unit (PMU)
7	Impact of Hydro development	Social	P = 3 I = 4	It is clear that the development of hydroelectric power is a key component of Peru's energy diversification strategy. In this context, it is important to ensure that all social and environmental impacts are fully assessed and that all projects to be developed are fully aligned with national and international standards in regards to hydroelectric development. The complexity of this process implies that some projects may not be developed and others may be delayed. While this poses a risk that the country's energy diversification agenda may be affected, it is essential to ensure that hydropower development is conducted in a sustainable manner and that local social and environmental safeguards are fully implemented. The project will ensure that all hydro development included in the NAMA framework is fully compliant with international standards.	Project Management Unit (PMU)
8	Environmental Climate change impacts	Environmental	P = 3 I = 5	The country's commitment to developing renewable energy resources may be affected by changing climate patterns. In particular, climate change is having a significant impact on the availability of hydro resources as glacier retraction continues to accelerate and climate variability phenomena such as "El Niño" and "La Niña" are exacerbated. The project will fully coordinate itself with Peru's strong climate change adaptation analytical framework to ensure that climate risks are fully incorporated in the energy generation NAMA framework.	None

Annex 7.2. Agreements

Four co-financing letters are submitted as separate attachments, from Ministry of Energy and Mining, Ministry of Environment, Ministry of Economy and Finance, and UNDP. Please note that the Government of Peru refers to in-kind contributions due to the fact that the co-financing funds do not enter UNDP's accounts. However, such contributions consist of cash disbursements managed by the relevant ministries for the procurement of goods and services directly related to the project, and are therefore reported as cash contributions to the GEF project.

Annex 7.3 Calculation of GHG emission Reduction

GENERATION WITH ISOLATED PV SYSTEMS

Type	Number	Consumption	Tension
		kWh/year	Volts
Homes	488,526	290	12
Schools	8,972	1450	220
Health centers	2,502	2900	220
Total	500,000		

	Consumption in homes	kw.h/home/yr		290
		TJ/home/yr		0.0010
	Emission factor for isolated system (Based on diesel replacement)	tCO2/TJ		74
	Baseline emissions per household	***t CO2/vivienda***		***0.077***
	Number of households			488526
	Consumption in schools	kw.h/school/yr		1,450
		TJ/school/yr		0.0052
	Emission factor for isolated system (Based on diesel replacement)	tCO2/TJ		74
	Baseline emissions per school	***t CO2/school***		***0.387***
	Number of Schools			8972
	Consumo de electricidad en equipamiento - rural (postas)	kw.h/center/year		2,900
		TJ/center/yr		0.0104
	Emission factor for isolated system (Based on diesel replacement)	tCO2/TJ		74
	Baseline emissions per health center	***t CO2/health center***		***0.774***
	Number of Health Centers			2502
	Annual Reduction	tCO2e/año		43,198.51
		tCO2e/ over 10 years		**431,985.12**

GENERATION WITH NON CONVENTIONAL GRID CONNECTED RENEWABLES

Item	Amount	UNIT
Annual generation SEIN 2012	37,321,200	MWh
Emission factor SEIN 2012	0.27	tCO2/MWh
Emissions 2012	10,154,455	tCO2
emission factor SEIN 2012 with 5% Renewables	0.26	tCO2/MWh
Annual growth in generation	6.36	%
Renewable Generation 2012	553,492	MWh
% Renewable 2012	1.48%	%
Remaining renewables to reach 5% target	3.52%	%

Year	MWh	Assumed RE penetration	tCO2 without additional RE	tCO2 with additional RE	Reductions (tCO2)
2014	42,219,419	2.0%	11,487,176	11,429,740	57,436
2015	44,904,574	2.5%	12,217,761	12,095,583	122,178
2016	47,760,505	3.0%	12,994,810	12,799,888	194,922
2017	50,798,074	3.5%	13,821,280	13,544,855	276,426
2018	54,028,831	4.0%	14,700,314	14,332,806	367,508
2019	57,465,065	4.5%	15,635,254	15,166,196	469,058
2020	61,119,843	5.0%	16,629,656	16,044,799	584,857
2021	65,007,065	5.0%	17,687,302	17,065,248	622,054
2022	69,141,514	5.0%	18,812,214	18,150,598	661,616
2023	73,538,914	5.0%	20,008,671	19,304,976	703,695
Total					4,059,748
Assuming GEF "Level 2" Causality Factor (40%)					1,623,899

Annex 7.4. Terms of reference and description of sub-contracts

1. Government counterparts

Project Steering Committee (PSC)

Duties and responsibilities:

The Project Steering Committee (PSC) is the main body supervising the project implementation in accordance with UNDP rules and regulations, and referring to the specific objectives and the outcomes of the project with their agreed performance indicators.

The main functions of the PSC are:

- General monitoring of project progress in meeting its objectives and outcomes and ensuring that they continue to be in line with national development objectives;
- Facilitating the co-operation between the different Government entities, whose inputs are required for successful implementation of the project, ensuring access to the required information and resolving eventual conflict situations raising during the project implementation when trying to meet its outcomes and stated targets;
- Supporting the elaboration, processing and adoption of the required institutional, legal and regulatory changes to support the project objectives, and overcoming the related barriers;
- Facilitating and supporting other measures to minimize the identified risks to project success, remove bottlenecks and resolve eventual conflicts;
- Approval of the annual work plans and progress reports, the first plan being prepared at the outset of project implementation;
- Approval of the project management arrangements; and
- Approval of any amendment to be made in the project strategy that may arise from a change in circumstances, after careful analysis and discussion of the ways to solve problems.

PSC Structure and Reimbursement of Costs

The PSC will be chaired by the MINAM. The PSC will also include representatives from the MINEM and MEF and UNDP, as well as the Project Manager. If required, representatives of the project stakeholders or other co-financing partners can be invited into the PSC meetings at the discretion of the PSC.

The costs of the PSC's work, except the work of the Project Manager, shall be considered as the Government's or other project partners' voluntary in-kind contribution to the project and shall not be paid separately by the project. Members of the PSC are also not eligible to receive any monetary compensation for their work as experts or advisers to the project.

Meetings

It is suggested that the PSC will meet at least once a year. A tentative schedule of the PSC meetings will be agreed to as a part of the annual work plans, and all representatives of the PSC should be notified again in writing 14 days prior to the agreed date of the meeting. The meeting will be organized provided that the executing agency, the UNDP and at least 2/3 of the other members of the PSC can confirm their attendance. The Project Manager shall distribute all materials associated with the meeting agenda at least 5 working days prior to the meeting.

National Focal Point

As a representative of the Government and the project's executing agency, the National Focal Point has the main responsibility to ensure that the project is executed in accordance with the Project Document and the UNDP guidelines for nationally executed projects.

His/her main duties and responsibilities include:

- Coordinating and guiding the work of the Project Manager with the work of the national implementing agency through meetings at regular intervals to receive project progress reports and provide guidance on policy issues;
- Certifying the annual and, as applicable, quarterly work plans, financial reports, and ensuring their accuracy and consistency with the project document and its agreed amendments;
- Taking the lead in developing links with the relevant authorities at the national, provincial and governmental levels and supporting the project in resolving any institutional- or policy-related conflicts that may emerge during its implementation.

2. <u>Local project Staff</u>

Project Manager – Local consultant (full time)

Duties and responsibilities:

Operational project management in accordance with the Project Document and the UNDP guidelines and procedures for nationally executed projects, including:

- General coordination, management and supervision of project implementation;
- Ensuring the delivery of project results and leading the implementation process for the 4 project outcomes;
- Management of the procurement and the project budget under the supervision of the UNDP to ensure timely involvement of local and international experts, organization of training and public outreach, purchase of required equipment etc., in accordance with UNDP rules and procedures;
- Submission of quarterly progress reports and provision of inputs for the Annual Project Implementation Reviews to the PSC, Executing Agency and the UNDP in accordance with the section "Monitoring Framework and Evaluation" of the Project Document;
- Ensuring effective dissemination of, and access to, information on project activities and results, including a regular participation in relevant selected networks;
- Oversight and coordination of the contracts of the international and local consultants working for the project; and

- Ensuring otherwise successful completion of the project in accordance with the stated outcomes and performance indicators summarized in the project's log frame matrix and within the planned schedule and budget.

Expected Qualifications:

- Advanced university degree and at least 7 years of professional experience, or university degree with 10 years of professional experience in the specific areas the project is dealing with, including solid knowledge of the NAMA international context and the energy sector in Peru.
- Experience in managing or participating in projects of similar complexity and nature, including a demonstrated capacity to actively explore new, innovative implementation and financing mechanisms to achieve the project objectives;
- Demonstrated experience and success in the engagement of, and working with, the private sector and NGOs, creating partnerships for activities of common interest;
- Good analytical and problem-solving skills and the related ability to adaptively manage with prompt action on the conclusion and recommendations coming out from the project's regular monitoring and self-assessment activities as well as from periodic evaluations;
- Ability and demonstrated success to work in a team, to effectively organize it, and to motivate its members and other project counterparts to effectively work toward the project's objectives and expected outcomes;
- Good communication skills and competence in handling project's external relations at all levels; and
    - Fluent/good knowledge of both Spanish and English languages;
    - Familiarity and prior experience with UNDP and GEF requirements and procedures are considered as an asset.

Allocated Budget: $240,000

Mitigation expert – Local consultants (full time)

Two full time local consultants will be hired to follow up and support the work carried out by the Project Manager and Consultancies described below. The Mitigation Expert will have experience in the Power sector/RE, to follow up the 2 selected sub-sectors (grid connected renewable energy and off grid renewable energy).

Expected Qualifications:

- Advanced university degree and at least 2 years of professional experience or graduate university degree with 4 years in activities related to the Peruvian electricity sector, including grid management or other related field;
- Familiarity with the key characteristics of grid connected and decentralized RE investments and technologies in the Peruvian context;
- Demonstrated experience and success in the engagement of, and working with, the public and private sectors;

- Good analytical and problem-solving skills and the related ability to adaptively manage with prompt action, the conclusions and recommendations coming out of the project's regular monitoring and self-assessment activities as well as from periodical external evaluations;
- Ability, and demonstrated success, to work in a team, to effectively organize it, and to motivate its members and other project counterparts to effectively work towards the project's objectives and expected outcomes;
- Good communication skills and competence in handling project's external relations at all levels; and
- Fluent/good knowledge of both Spanish and English languages.

Allocated Budget: $320,000 (2 X $160,000)

National Mitigation Economist – MRV and Results Based Budgeting.

The national mitigation economist will work with the MEF in close collaboration with the MINAM. His/her key function will be to incorporate in the Results Based Budgeting Framework of the MEF GHG mitigation indicators. He/she will identify existing and new strategic programmes that contribute to GHG emission reduction and develop parameters to monitor emission reduction indicators. He/she will have to work closely with the sectorial ministries and regional entities that implement the strategic programmes to evaluate the viability of incorporating additional GHG emission parameters, build the case for the incorporation of the GHG indicators and support the implementing agencies in the MRV process.

Expected Qualifications:

- Advanced university degree and at least 2 years of professional experience or graduate university degree with 4 years in activities related to environmental economics and climate change mitigation;
- Familiarity with the key characteristics of the energy sector in the Peruvian context;
- Demonstrated experience and success in the engagement of, and working with, the public and private sectors;
- Good analytical and problem-solving skills and the related ability to adaptively manage with prompt action, the conclusions and recommendations coming out of the project's regular monitoring and self-assessment activities as well as from periodical external evaluations;
- Ability, and demonstrated success, to work in a team, to effectively organize it, and to motivate its members and other project counterparts to effectively work towards the project's objectives and expected outcomes;
- Good communication skills and competence in handling project's external relations at all levels; and

- Fluent/good knowledge of both Spanish and English languages.

Allocated Budget: $160,000

Project Administration Assistant

A project administration assistant will be recruited on a full time basis to support project implementation, track contracts and budget delivery, liaise with UNDP Peru's Administrative and Finance units to facilitate project implementation, and prepare administrative and financial reports.

Expected Qualifications:

- University degree and at least 2 years of professional experience in finance and administration
- Demonstrated accounting skills
- Advanced computer software knowledge, including database management and accounting software
- Ability, and demonstrated success, to work in a team
- Good communication skills and competence in handling project's external relations at all levels; and
- Fluent/good knowledge of both Spanish and English languages.

Allocated Budget: $60,000

3. Project Experts (International/National consultancies and/or specialized firms)

Note: The tasks listed below will be performed either by consultancy firms that include both national and international specialists, or through the procurement of individual national and international consultants brought together to deliver a product. This will be left to the discretion of the Project Manager, subject to approval by UNDP and the Project Steering Committee through annual work plans and budgets. Whichever methodology is chosen, a common principle is that these consultancies are short term and the payment structure will be based on the delivery of products.

Consultancy for development of a GHG Inventory System:

A consultancy composed of international and national experts will be procured to establish national and regional (in the case of systems not connected to the grid) GHG inventories for new renewable energy sources connected to the grid, improved energy transmission system and new renewable energy sources not connected to the grid, establish national and regional (in the case of systems not connected to the grid) GHG emissions BAU reference baselines for new renewable energy sources connected to the grid, improved energy transmission system and new renewable energy sources non-connected to the grid. This consultancy will merge

tasks associated to Outcome 1 given that developing the GHG inventories (ensuring compatibility with InformaGEI and National Energy Balance) and establishing the GHG emissions BAU baselines require a similar set of know-how and skills. There are many consultancies with proven experience and a long track record developing the above in a number of countries.

Allocated Budget $ 240,000 ($150,000 Int'l and $90,000 Nat'l)

Consultancy for development MACC curves and NAMA Concept Designs

A consultancy will be procured to develop detailed marginal abatement cost curves for mitigation actions for the energy sector and for the selected sub sectors. This consultancy will also develop NAMA concept designs and issue NAMA factsheets which can be accompanied by a Draft Design Sheet and by the UNFCCC Request for additional support for preparation if required. This consultancy has been kept separated from the one above as the know-how, skills and track record to carry out this task is different, as well as the potential candidates to perform the work would be different profiles of Consultancies.

Allocated Budget: $280,000 ($200,000 Int'l, $80,000 Nat'l)

Consultancy for 4 NAMA Detailed Designs

This consultancy will focus on the detailed design of the four NAMAs selected for implementation. Due to the differences in sub-sectors, scope, and timing for each NAMA, it may be necessary to split this consultancy into two or more contracts for more specific individual NAMA design. The consultancy will deliver NAMA Detailed Design Documents for each NAMA including all operational and institutional arrangements and financial structure. This will be accompanied by a submission to the UNFCCC NAMA Registry (to be done by the government) and, as necessary, a proposal/request for additional financing to the NAMA Facility to move towards implementation.

Allocated Budget: $380,000 ($300,000 Int'l, $80,000 Nat'l)

Consultancy to develop NAMA PPPs

While the Detailed Design consultancy will analyze potential partners, stakeholder mapping, etc., most of the cost of setting the PPP entities and of marketing and developing them will be conducted through a separate consultancy service. For the development of PPPs, specific PPP-related experience and a strong record delivering financial advisory services in the power generation /RE /transmission upgrading sectors will be required (more than specific scaled-up mitigation experience).

Allocated budget ($200,000 Int'l, $80,000 Nat'l)

Consultancy to develop Performance Based Payments Structure

This consultancy will support the FISE and the MEM in developing and structuring a Performance based Payment (PbP) mechanisms that will allow to attract private sector participants to provide the services to install, operate and maintain the off-grid renewable energy systems. This PbP will be incorporated in the tender processes implemented by OSIGERMIN in the context of the bylaw for the promotion of investments for electricity generation in areas not connected to the grid. The PbP design will include GHG emission reduction consideration.

Allocated budget ($100,000 Int'l, $50,000 Nat'l)

Consultancy for development of NAMA MRV Systems for the selected sub-sectors

A consultancy will be procured to develop the NAMA MRV System for related sub-sectors (including the design, the related IT system and management structure, and the development of training material (that will then be published with the publishing budget). In this case, specific hands-on, sectoral expertise developed through the development of mitigation projects and programs (such as CDM, CDM PoA, VCS & GS, VCS & GS PoA etc.), in particular in relation to MRV aspects, will be paramount. However, this consultancy may be merged with the NAMA Detailed Design Consultancy as necessary

Allocated Budget ($200,000 Int'l, $100,000 Nat'l)

Consultancy to monitor and extract lessons learned from NAMA Development

A consultancy will be procured to extract lessons learned from the NAMA development experience for the related sub-sectors. This consultancy will accompany the project throughout its lifetime, following the NAMA design and implementation process over the course of the project with bi-annual progress meetings. In addition to supporting project monitoring, the consultancy will help in recording the NAMA process and identifying lessons learnt during project implementation, rather than offering a retroactive view at the end of the project

Allocated budget 70,000 USD ($30,000 Int'l, $40,000 Nat'l)

Consultancies for Mid-term review and Final Evaluation

As per the described M&E plan, an international consultant will perform the Mid-Term Review, and a different consultant will be recruited for the Final Evaluation. Both consultancies will be fully independent and will follow UNDP/GEF evaluation procedures.

Allocated budget 40,000 USD ($40,000 Int'l)

Annex 7.5. Methodology for the selection of project sub-sectors

The following methodology was used during the design phase of this document for the assessment and selection of the project sub-sectors. This assessment is based on four standardized criteria used to prioritize in qualitative manner 10 sub-sectors:

• Mitigation potential.

• Alignment with government priorities (and relevant policies in place or planned).

• Existing or planned actions that can be used as building blocks for proposed actions

• National benefits linked to sustainable development (economic, environmental and social) and adaptation to climate change.

The rationale of the assessment follows the four steps described below:

Step 1 - Research and Categorization: Collect, review and classify relevant documents and data that provide the context of the country, including information on emissions of greenhouse gases, as well as governmental priorities and actions related to climate change.

Step 2. Long list of NAMA concepts - Develop a long list of opportunities organized by NAMA mitigation sub-sectors identified under Energy Industry, Manufacturing Industry and Construction, according to the classification of the IPCC for the Energy sector.

Step 3. Short list of NAMA concepts - Evaluate the short list on the basis of a pre-established set of criteria to ensure the best chance of success.

Step 4. Validation - Validate the short list of oportunitie with key actors identified with special emphasis on a quick estimate of technical reliability and its impact on national development priorities. Review the list short and rapid assessment report based on the comments received and the criteria listed above.

This process generated a list of opportunities that create the potential of each subsector and guide the prioritization process. The information developed provideD information relevant to produce the CEO endorsement document as well as the UNDP PRODOC.

Step 1: Research and Categorization

The first step in this process collected, reviewed and classified information to identify mitigation options related to specific sub-sectors, including documents and data that provide the context of the country, information on emissions of greenhouse gases, government priorities, and the ongoing and planned activities in the pre-selected sub-sector.

The pre-selected sub-sector were chosen following two criteria:

- The sub-sector must represent at least 10% of the total GHG emissions of the sector
- The sub-sector must represent at least 2% of the total GHG emissions of the country.

GHG ESMISSION SOURCES	TOTAL (Gg CO_2e)	% Sectorial	% Total
1. Energy	**25,400**	**100%**	**21.16%**
A. Fuel use (sectorial)	*24,989*	*98.38%*	*20.82%*
1. Energy industry	3,083	12.14%	2.57%
2. Manufacturing and construction industry	3,260	12.83%	2.72%
3. Transport	9,938	39.13%	8.28%
4. Commercial / Residential, Public and Agriculture	5,224	20.57%	4.35%
5. Fishery	2,127	8.37%	1.77%
6. Mining	1,357	5.34%	1.13%
B. Fugitive emissions from fuels			
1. Solid Fuels			
Two. Oil and Natural Gas			
B. Fugitive emissions from fuels	*411*	*1.62%*	*0.34%*
1. Solid fuels	4	0.02%	0.00%
2. Oil and natural gas	407	1.60%	0.34%
2. Industrial Process	**7,917**	**100%**	**6.60%**
A. Minerals	2,000	25.26%	1.67%
B. Chemical industry	86	1.09%	0.07%
C. Metal production	5,832	73.66%	4.86%
D. Other production.	0	0.00%	0.00%
E. Production of halocarbons and sulfur hexafluoride	0	0.00%	0.00%
F. Consumption of halocarbons and sulfur hexafluoride	0	0.00%	0.00%
G. Other (food and beverages)	0	0.00%	0.00%

Sector	Pre selected sub-sector	Estimated Mitigation Potential (TO2e)
Energy	- Electricity generation connected to the grid	4,500,000
	- Electricity generation in isolated systems or self generation	7,700,000
	- Existing residential commercial public electricity consumption.	1,800,000
	- Existing consumption in manufacturing and construction activities.	500,000
Transport	- Public transportation	6,900,000
Housing and Construction	- New residential and commercial buildings	325,000
Production	- Cement, Brick.	Insuficient information
	- Production of metals (foundries)	300,000

As result of this process, a collection of relevant documents regarding the country's economy, development priorities, national and sectoral policies and priorities and major initiatives - organized for the preselected subsectors were used for further evaluation. The collection and processing resulted in three lists of important information necessary to identify mitigation actions:

Government policies and priorities,

Current initiatives by sector (including CDM and PoAs),

Recommended actions in government documents (and in particular sectoral mitigation objectives and global).

This step started with a preliminary survey conducted with key stakeholders to identify and access various information sources. The research focused on the assembly and classification of information on the following topics:

• Sectoral context (trends in energy use and energy access, technologies or interventions recommended for implementation)

• Greenhouse gas emissions inventories and projections for the sub-sector.

• Government priorities and policies (including national development plans for each sub-sector)

• Government policies and priorities relevant for sub-sectors.

• Major initiatives by the government, civil society, the private sector, multilateral institutions and donors in the sub-sectors.

• Any other information that may be relevant to mitigation options.

Categorization - The categorization of the data was carried out simultaneously with the collection and review of documents. To facilitate identification of opportunities, selected information were organized as follows:

• Government priorities at the national level and by sub-sectors.

• Initiatives and current mitigation activities by subsector - including government initiatives, donors, civil society and private sector.

• List of actions planned or necessary in the sub-sectors, as defined in government documents or other recognized sources.

The initiatives and actions considered were those that have the potential to reduce emissions of greenhouse gases.

Step 2: Long list of NAMA concepts

The aim of this step was to develop a long list of viable concepts for the country. This list was the basis for the selection of project sub-sector to be developed in step 3.

The result of this stage is an organized list of mitigation opportunities for the country. On the basis of the lists of current initiatives and recommended actions developed in step 1, potential mitigation options / actions were assessed. The degree of specificity was related to the quality of the information provided by stakeholders and experts consulted.

Mitigation Opportunity	Sector	Sub Sector	Source	Estimated Mitigation Potential (tCO_2e)	Reference Required investment (US$)
Replacing traditional cook stoves for improved cook stoves	Energy	Existing residential commercial public electricity consumption.	MINEM. NUMES. Development of a New Sustainable Energy Matrix Reference Plan for the efficient use of Energy 2009 – 2018	1,653,500	15,000,000
Lighting replacement program from standard high efficiency lighting and energy management.	Energy	Existing residential commercial public electricity consumption.	MEM. NUMES. Development of a New Sustainable Energy Matrix	-	-

Mitigation Opportunity	Sector	Sub Sector	Source	Estimated Mitigation Potential (tCO_2e)	Reference Required investment (US$)
Promoting investment for electricity generation using renewable energy	Energy	Electricity generation connected to the grid Electricity generation in isolated systems or self generation	MEM	1,875,691	-
Minimum Standards for Energy Efficiency in equipment and processes.	Energy	Existing consumption in manufacturing and construction activities.	MEM	Facilitation activity	-
Energy generation based on biomass residues	Energy	Electricity generation connected to the grid Electricity generation in isolated systems or self generation	ECN – ECOFYS	9,300,000	-
Modernization Of lightning systems in the Residential Sector	Energy	Existing residential commercial public electricity consumption.	MINEM. NUMES. Development of a New Sustainable Energy Matrix Reference Plan for the efficient use of Energy 2009 – 2018	130,086 starting at 2015	2,700,000
Improvement Of Energy Consumption Habits Of The Population.	Energy	Existing residential commercial public electricity consumption.	MINEM. NUMES. Development of a New Sustainable Energy Matrix	26,494 between 2009 and 2018	5,000,000 per year up to 2020.

Mitigation Opportunity	Sector	Sub Sector	Source	Estimated Mitigation Potential (tCO_2e)	Reference Required investment (US$)
			Reference Plan for the efficient use of Energy 2009 – 2018 NUMES.		
Replacing electric water heaters for Systems solar water heaters (SCAES).	Energy	Existing residential commercial public electricity consumption.	MINEM. NUMES. Development of a New Sustainable Energy Matrix Reference Plan for the efficient use of Energy 2009 – 2018 NUMES.	74,290 between 2009 and 2018	40,000,000 investment for 6 years
Extension SEINSs it to integrate isolated systems	Energy	Electricity generation in isolated systems or self generation	MEM. NUMES. Development of a New Sustainable Energy Matrix	-	-
Rural Energy development program with renewable energy.	Energy	Electricity generation in isolated systems or self generation	MEM	1,224,309	-
Cogeneration in productive and service activities	Production	Cement, Brick. Production of metals (foundries)	Reference Plan for the efficient use of Energy 2009 – 2018	380, 190	294,000,000 between 2009 and 2013
Energy efficiency and good practices in the construction sector	Production	Cement, Brick.	UNDP	291,600	-
Replacement of	Product	Cement, Brick.	Reference	190,000 per	63,500,000

Mitigation Opportunity	Sector	Sub Sector	Source	Estimated Mitigation Potential (tCO_2e)	Reference Required investment (US$)
standard engines for efficient engines	ion	Production of metals (foundries)	Plan for he efficient use of Energy 2009 – 2018	year	for the 2009 2013 period
Optimization and upgrading boilers	Production	Cement, Brick. Production of metals (foundries)	Reference Plan for he efficient use of Energy 2009 – 2018	662,632 per year	22,400,000 for the first 4 year
Energy efficiency and renewable energy standards in new residential buildings	Housing and Construction	New residential and commercial buildings	Housing and Construction Ministry, Environment Canada, EU / CAF	325,000 per year	-
Construction of segregated high capacity corridors in Lima.	Transport	Public Transport	Second National Communication for the UNFCCC. Lima Municipality	275,320	116,000,000
Public transportation system: Electric train for Lima and Callao (Lines 1, 2, 3, 4 and 5)	Transport	Public Transport	Autoridad Autónoma del Tren Eléctrico	200,000	-
Expanded use of natural gas in the transport / removal of diesel	Transport	Public Transport	Second National Communication for the UNFCCC.	73, 563	50,200,000
Modernization of the fleet not to exceed 10 years	Transport	Public Transport	Second National Communication for the UNFCCC.	4,337,515	-
Increasing efficiency in public transport operations	Transport	Public Transport	Second National Communication for the UNFCCC.	642,765	-

Mitigation Opportunity	Sector	Sub Sector	Source	Estimated Mitigation Potential (tCO_2e)	Reference Required investment (US$)
Low Carbon Transport in Lima and Callao. Urban mobility through integrated mobility systems, energy efficiency labeling on light cars and land use planning.	Transport	Public Transport	British Embassy - Centre for Low Carbon Futures.	436,543	170,000,000
Arequipa Bus. Integrated transport system.	Transport	Public Transport	Arequipa Municipality. CAF	120,000	-

Step 3: Short list of NAMA concepts

The objective of stage 3 was to filter the long list to develop a short list of potentially applicable mitigation option / actions in the country with moderate to high potential mitigation, relevant co – benefits, linked to sustainable development and government priorities, and high probability of being implementation on the basis of existing initiatives.

The mitigation options / actions presented in the long list were evaluated using the following criteria:

• Significant mitigation potential - On the basis of a benchmark that defines significant impact on emissions reduction level. The mitigation potential is estimated generally at this stage of rapid assessment.

• Alignment with government priorities - Actions meet or contribute to meeting national development objectives at the government and / or sectoral level. Actions that are not in line with government priorities will be deleted from the list.

• Evidence of existing action - The options were built based on existing initiatives to avoid duplication of efforts and demonstrate a certain capacity in the country to coordinate their development efforts. The existing actions were investment, planning or promotion. If there is no evidence of similar or complementary initiatives, whether government, private sector or major donors, the action was removed from the list.

• Co-benefits linked to sustainable development and climate change adaptation - Recognizing that options should contribute to sustainable development, and that development is a national priority, all shortlisted options had at least a clear benefit to the economic, social, environmental or adaptation to climate change while not having significant negative impacts.

As a result of this process all shortlisted NAMA with significant mitigation potential, aligned with government priorities, sustainable development benefits, and with evidence of action on which to build in the country were considered.

This was a high-level assessment, which used evidence from the literature or information provided by expert opinion. The results were organized by sub- sectors as defined in step 1, and used during the validation process.

Mitigation Option	Mitigation Potential	Alginment with national priorities	Evidence of existing action	Co-benefits		
				Social	Environmental	Economic
Investment in generation plants connected to the grid using solar, wind and hydro.	High	Yes	Renewable Energy Tenders / Law for the promotion of renewable energy generation	+	++	+++
Use of waste biomass for generation connected and not connected to the grid.	Medium	Yes	Renewable Energy Tenders / Law for the promotion of renewable energy generation	+	++	++
Developing an efficient transmission system through improving existing networks and creating new networks of medium and high voltage.	Medium	Yes	NUMES / Reference Plan for he efficient use of Energy 2009 – 2018	+	+	+++
Extension of the national electricity system (SEIN) to integrate the systems currently isolated areas.	Medium	Yes	NUMES / Reference Plan for he efficient use of Energy 2009 – 2018	+	++	++
Rural energy development using renewable energy sources, such as solar, wind and hydro.	High	Yes	Renewable Energy Tenders / Law for the promotion of Rural Energy development with renewable energy	+++	++	++

Step 4: Validation

The goal of this step was to validate the short list of priority NAMA concepts with key actors identified in terms of a quick estimate of technical reliability and impact over sustainable development objetives.

This step validated the selection of potential prioritized mitigation options, including analysis and assumptions with stakeholders and experts in the country. This step generated an enhaced understanding of the work previously developed, by the contributions of stakeholders and experts, defining the sub-sectors to be prioritized for the next steps of the consultancy.

These four steps have been the basis for the preparation of the documents required for the approval of the CEO and UNDP. Discussions with national experts through the validation process helped determine if the actions are aligned with government priorities, if there is an enabling environment to prepare and implement the NAMA, if there are barriers that affect the feasibility of implementing NAMA, and if additional actions to be taken into account in the analysis are viable. Information gaps and data were also supplemented at this stage.

Annex 7.6 Description of Selected sub-sectors

Following the application of the Assessment Methodology, two sub-sectors have been selected for the project focus. The sub sectors will be fully assessed to define the most cost effective and viable NAMAs within each sub sector. Four NAMAs will be selected for pilot implementation. Below is a description of the sub sectors.

Renewable energy connected to the National Grid (SEIN)

The inclusion of non-conventional renewable energy sources[11] connected to the national energy grid as a mean to supply the energy demand of the Peruvian growing economy has been reinforced through the development and implementation of renewable energy requests for tenders since 2009. The Legislative Decree no. 1002 (Law), the Supreme Decree no. 050-2008-EM (bylaw) and the Legislative decree no. 105, all from 2008, established the regulatory framework and benefits for the Non-Conventional Renewable Energy Sources (ERNC) which are wind, solar, biomass, geothermal, wave or tidal and small hydro units. The benefits include priority in the dispatch, accelerated depreciation, anticipated tax returns and fixed prices calculated specially for each technology. The projects have to win a public request for tender (the first one developed in 2009), organized by OSINERGMIN in order to access these benefits, which are set only for projects up to a maximum participation of 5% of the national energy demand.

The implementation of requests for tender has enabled the development of wind and solar projects as new technology sources in the country. It also allowed the addition of biomass projects, of which participation was almost non-existent (0.4% of the total installed capacity), and also of small hydro power plants that were less than 2% of the total installed capacity (micro power plants with less than 5 MW represented less than 0.1%)[12]. The amount of energy per technology to be part of each request for tender, the approval of the request for tender execution and the maximum tariff determination is the responsibility of the Ministry of Energy and Mines, which leaves the operative implementation of the request for tender to OSINERGMIN.

Two renewable energy tender processes were realized between 2010 and 2011, the first for a total capacity of 1GW and the other for 410 MW. Neither reached the targeted total capacity.

Source	Price ($US/MW)		Capacity MW 2010	Capacity MW 2011	Total Capacity MW
	2010 tender	2011 tender			
Hydroelectric	60	53	180	102	282
Biomass	64	99	27	2	29
Wind	80	69	142	90	232
Solar	221	221	80	16	96
Total			429	210	639

[11] The prioritized sub-sector does not cover large-scale hydro power plants.

[12] These statistics are from 2011 COES annual report, in order to account for a system with no renewable energy request for tender projects in operation.

As a result of these two tenders, the installation of an additional capacity of 639 MW from renewable energy is planned by 2015. The first announcement for the third tender, which started in August 2013, was published in July 2013, expecting to concede 320 GWh per year for biomass sources.

The low participation of renewables in grid connected generation is in high contrast with the potential resources available in the country, which are almost 70,000 MW for hydroelectricity (1,000MW for units less than 10 MW), 22,000 MW for wind sources and 2,860 MW for geothermal sources, with 272 MMt of biomass and an average cumulative solar energy of 5 kWh/m2 (considering a benchmark of 4.5 KWh/m2 to become viable for electricity generation). The participation of non-conventional renewable energy sources in the country has been limited by internal market or technological conditions, such as the high investments in transmission lines (as opposed to fossil fuel power plants that can be located closer to the substations), high technology costs (especially solar and wind power plants), investment attractiveness, license approval processes and low spot market tariffs to name a few. Also, according to the official forecast done by the Peruvian Ministry of Energy and Mines for the period of 2008–2027, the long term marginal cost of the SEIN is projected to be under 30 USD per MWh, while the long-term marginal costs of generation are of 3.4 USD/ MWh. These prices are not conducive to renewable energy development and are highly influenced by the availability of low cost domestic natural gas.

Substantial tariff increases are not likely since energy generation in Peru is becoming cheaper as a result of the low cost of natural gas as fuel and the activation of various natural-gas-fired thermoelectric plants and hydroelectric power plants[13]. Due to the discovery of substantial gas fields in Peru, the regulatory and policy framework was directed to favour the natural-gas-based electricity generation technologies[14]. In February 2000, a license for the exploitation of the Camisea Field and a concession for natural gas and liquefied natural gas (LNG) transportation were released for October 2000. The government passed laws DS 019-2004 on June 25, 2004, DS 041-2004-EM on November 24, 2004; and DS 107-2004-EF on August 5, 2004, to promote natural-gas-fired electricity generation and to exempt the selective consumption tax and general sales tax to natural gas. These 3 laws help natural gas become an even more competitive alternative choice for power generation. In addition the regulatory framework established, all power plants pay part of the fixed costs of the natural gas power transportation, thus reducing (subsiding[15]) the variable costs of natural gas power plants and the tariff. The reduction of the tariff affects only power plants with a lower variable cost than natural gas based power generation, like the renewable-energy ones[16].

[13] MEM (2008). "Electrical Referential Plan year 2008-2017" of the Ministry of Energy and Mines.

[14] ESAN. July 2008. "Entry Barriers Analysis for the Investment in Hydroelectric Power Plants, OSINERGMIN, ESAN. July, 2008"

[15] World Bank (2008). Study about how small hydro power generation in Peru indicates the different incentives for the natural gas electricity generation and its major impacts on the hydro power development in the country, and estimates that for small projects the financial returns (FIRR) can be reduced by around 70% because of the natural gas subsidies. These results are also linked to barriers in the introduction of other renewable energy sources in the grid.

[16] ESAN. July 2008. "Entry Barriers Analysis for the Investment in Hydroelectric Power Plants, OSINERGMIN, ESAN. July, 2008"

Off Grid Renewable Energy

In 1992, after the implementation of the new energy market system (SEIN) through the Concession Electric Law no. 25844, the electrification index of the country was of 54.8% (77% urban and 7.7% rural) Only in 2007, via Supreme Decree no. 026-2007-EM, was the Executive Project Directorate of the Ministry of Energy and Mines united with the Project of Rural Electrification Improvement, with the use of FONER as financial support, thus creating the General Directorate of Rural Electrification (DGER – MEM). Its functions were set in the Supreme Decree no. 031-2007-EM. The regulatory framework regulating this sector is provided by Law no. 28749 (General law of rural electrification) from 2006 and its bylaw from 2007. They list the conditions for the promotion and development of efficient and sustainable electrification activities in rural areas that include the frontier areas and the isolated communities or systems.

Rural electrification in Peru faces several challenges because of the difficult access, the remoteness, the low unit energy consumption, the dispersion, the low incomes of the families, the lack of proper main road access and the limited health, education, sanitation and agro infrastructures, among others. The low economic viability of many types of electrification projects has reduced the participation of the private sector and has made the country dependent of its government initiatives. On the other hand, the socio–economic impact of these projects is high enough to set rural electrification as a main goal of the government.

By 2007, the national electrification index was of 74.1 (89.1% urban and 29.5% rural). The expectancy is to have 87.2% urban and 63% rural indexes by December 2013, and a rural electrification index of 95.8% by the year 2022. Between 2001 and November 2012, the electrification activities led to 3.9 million new persons having access to electricity through the investment of approximately U$1 billion in hydro, transmission, solar and thermal projects. The annual budget has been increasing since 2006, but the execution of 100% of these financial sources has not been met in any year.

As per the National Rural Electrification Plan (PNER) 2013-2022 (December 2012), there are 97 projects in the pipeline using renewable energy sources, for a total estimated investment of USD 100 million that provide energy access to around 239 thousand people. There are 29 solar photovoltaic projects using Grant Funds for the Improvement of Rural Electrification systems - FONER II (Loan from BIRF of USD 50 million with the government, local funds and distribution companies, for a total of USD 82.7 million), 5 projects in the frontier areas with a total investment of USD 80 million by the use of photovoltaic systems (in 2,197 communities), as well as technical support for the development of renewable energy. The PNER sets the objectives and strategies of the rural electrification. In general, the planned investment in renewable energy projects up to 2022 is of approximately US$ 400 million, mainly for solar photovoltaic initiatives, followed by hydro and wind projects.

One important initiative has been placed in the framework of the renewable energy tender of 2013, and considers the implementation of 500,000 photovoltaic modules in houses, education and health facilities in rural areas by 2016. This project will use private investments, governmental trust funds and distribution expertise to implement and invoice the energy produced, with a total investment estimated in around USD 400 million of total investments, with near USD 200 million being provided by the Peruvian government. This is a unique initiative that aims to accelerate the implementation ratio of modules per year, giving economic sustainability and introducing the private sector in the process.

Through the years, the lack of ex-post monitoring and proper procedures to measure all the project benefits have reduced the impact of their implementation, the cost-effectiveness of the initiatives, the participation of the private sector and the rate of the rural electrification that would be highly improved by better project assessments and executions. Even with new promotional schemes or projects, the electrification initiatives will still face the current problems, leading to a slower rate of electrification based on cleaner sources. Under these circumstances, the GEF project will have a significant and highly positive impact on this kind of activities.

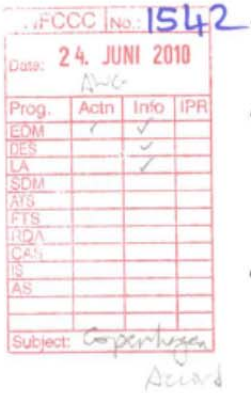
Annex 7.7 Peru´s communication of national voluntary mitigation targets to the UNFCCC

Embajada de la República del Perú
en la República Federal de Alemania

OOII/2010/03

La Embajada del Perú en la República Federal de Alemania saluda muy atentamente a la Honorable Secretaría de la Convención Marco de las Naciones Unidas sobre Cambio Climático y, por instrucciones de su Gobierno, tiene el honor de presentar oficialmente las Acciones Nacionales Adecuadas de Mitigación indicadas en el párrafo 5 del Acuerdo de Copenhague, al cual el Perú se asoció el 28 de enero pasado, mediante comunicación 14-2010-DGCCDRH/VMDERN/MINAM, dirigida a esa Secretaría.

Al hacerlo, la Embajada del Perú en Alemania desea reiterar la firme voluntad de su Gobierno de fortalecer la acción colectiva para mitigar el cambio climático, a través del desarrollo de una economía de crecimiento sostenible baja en emisiones de carbono. Con dicho propósito realizará las siguientes acciones voluntarias, de acuerdo a los principios y provisiones de la Convención Marco de las Naciones Unidas sobre Cambio Climático, particularmente sus artículos 4, párrafo 1; 4 párrafo 7; 12 párrafo 1 (b); 12 párrafo 4 y 10 párrafo 2 (a):



- Al año 2021, reducción a una tasa cero de la deforestación neta de los bosques primarios o naturales.
- Modificación de la matriz energética actual, a fin de que al año 2020, las energías renovables (energías no convencionales, hidroenergía y biocombustibles) representen, por lo menos, el 33% de la energía consumida en el país.
- Diseño e implementación de medidas que permitan reducir las emisiones causadas por la gestión inadecuada de residuos sólidos.

A la
Honorable Secretaría de la Convención
Marco de las Naciones Unidas
sobre Cambio Climático
Bonn

Estas medidas no excluyen el uso del Mecanismo de Desarrollo Limpio establecido bajo el Protocolo de Kyoto, ni de otros mecanismos de mercado que pudieran crearse bajo la Convención. Asimismo, para el desarrollo y aplicación de las medidas enunciadas, el Gobierno del Perú requiere contar con el decidido apoyo de la comunidad internacional, a través de la vasta gama de mecanismos financieros y de cooperación que se encuentren disponibles.

La Embajada del Perú hace propicia la oportunidad para reiterar a la Honorable Secretaría de la Convención Marco de las Naciones Unidas sobre Cambio Climático, las seguridades de su más alta y distinguida consideración.

Berlín, 21 de junio de 2010

"Decenio de las Personas con Discapacidad en el Perú"
"Año del Centenario de Machu Picchu para el mundo"

Lima, 25 de julio de 2011

Carta Nº 055 -2011-DVMDERN/MINAM

Honorable Señora
Cristiana Figueres
Secretaria Ejecutiva de la Convención
Marco de las Naciones Unidas
Bonn.-

De mi mayor consideración:

Transcurrido más de seis meses del término de la 16° Conferencia de las Partes, realizada en Cancún, México, del 29 de noviembre al 11 de diciembre de 2010, me es grato dirigirme a usted para reiterarle la satisfacción de nuestro Gobierno por los resultados alcanzados en la misma.

En relación al documento aprobado durante dicha Conferencia, y en el espíritu del compromiso permanente que anima al Perú en su esfuerzo por contribuir positivamente al esfuerzo global contra el cambio climático, me es grato expresar la renovación de la decisión adoptada por nuestro gobierno, transmitida a la Secretaría de la Convención el 21 de junio de 2010, mediante Nota OOII/2010/03, de la Embajada del Perú en la República Federal de Alemania, y reiterada por el propio señor Presidente de la República, Dr. Alan García Pérez, en su intervención ante el 65° Periodo ordinario de la Asamblea General, el 22 de setiembre de 2010 en la ciudad de Nueva York.

Por medio de la presente comunicación, el Gobierno del Perú reafirma su voluntad de fortalecer la acción colectiva para mitigar el cambio climático, a través del desarrollo de una economía de crecimiento sostenible baja en emisiones de carbono, y expresa su voluntad de realizar las siguientes **acciones de reducción de emisiones hasta el año 2021**, de acuerdo a los principios y provisiones de la Convención Marco de las Naciones Unidas sobre Cambio Climático, particularmente sus artículos 4, párrafo 7; 12 párrafo 1(b); 12 párrafo 4; 10 párrafo 2 (a):

1. **Emisiones netas declinantes y equivalentes a cero en la categoría Uso de la Tierra, Cambio de Uso de la Tierra y Silvicultura.**

   Nos proponemos alcanzar esta meta con la conservación efectiva de 54 millones de hectáreas de bosques primarios a través de nuestro Programa Nacional de Conservación de Bosques para la Mitigación del Cambio Climático y medidas complementarias en la categoría mencionada UC, con lo cual estimamos lograr una reducción de emisiones del orden del 45% con respecto al año 2000, con un potencial de emisiones evitadas del orden de los 50 MT de CO2eq.

2. **Modificación de la matriz energética nacional a fin de que las energías renovables no convencionales y la Hidro-energía, representen en conjunto por lo menos el 40% de la energía consumida en el país.**

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Anexo 1346

Esperamos lograr este cambio con la combinación de uso de fuentes renovables (solar, eólica, biomasa, mareomotriz, geotérmica) y el incremento de la eficiencia energética para disminuir el uso de combustibles fósiles, lo que significará en conjunto una reducción aproximada del 28% de emisiones en este sector en relación al año 2000, y un potencial de emisiones evitadas del orden de los 7MT CO2eq.

3. **Captura y uso de metano proveniente de la disposición adecuada de residuos sólidos urbanos.**

   Para este fin se realizara programa de alcance nacional con prioridad en la construcción de rellenos sanitarios en 31 ciudades grandes y medianas del país y eventuales instalaciones complementarias, que permitirán reducir un estimado de 7 MT de CO2eq.

Para el desarrollo y aplicación de las medidas enunciadas, como se mencionó en junio de 2010, y fue reiterado en nuestra presentación durante los talleres inter - sesionales de Bangkok en abril de este año, nuestro Gobierno requiere contar con el decidido apoyo de la comunidad internacional a través de los mecanismos financieros y de cooperación que estableció la COP16, así como de aquellos que ya se encuentran en funcionamiento y disponibles.

Adicionalmente, le informamos que el 09 de julio de este año, el Gobierno Peruano aprobó un Plan Nacional de Acción Ambiental al 2021, en el cual se establecen objetivos y acciones que incorporan los compromisos enunciados, cuyo cumplimiento se orienta a la consecución de una economía nacional baja en carbono.

Hago propicia la oportunidad para reiterar a usted, Señora Secretaria Ejecutiva las seguridades de mi más alta consideración y estima personal.

Atentamente,

Rosario Gómez Gamarra
Viceministra de Desarrollo Estratégico de los Recursos Naturales
Punto Focal del Perú ante la Convención Marco de las Naciones Unidas
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Annex 7.8 Estimated UNDP Direct Project Services Costs

Budget Description	Total (USD)
Payment Processes	5,000
Issue checks	1,000
Create Vendor Profile	2,000
AR Management Processes	3,000
Procurement processes	18,000
Human Resources processes	15,000
TOTAL	**44,000**