CTCN
CLIMATE TECHNOLOGY CENTRE & NETWORK

Technical Assistance Response Plan – Terms of Reference

Country	Independent State of Papua New Guinea(PNG)
Request ID#	2016000055
Title	Technical support for Energy Efficiency (EE) on Refrigeration and Air Conditioning (RAC) Sector Regulations Development options for PNG
NDE	Mr. Ruel Yamuna, Managing Director, PNG Climate Change and Development Authority, info@occd.gov.pg / ryamuna959@gmail.com, PO Box 4017, Boroko, National Capital District, Port Moresby
Proponent	Ms Gwen Sissiou, General Manager REDD+ & Mitigation/or Mr. Alfred Rungol, Manager MRV & National Communication, Climate Change and Development Authority , PO Box 4017, Boroko, National Capital District, Port Moresby , gsissiou@gmail.com or kaferinrin@gmail.com,

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Summary of the CTCN technical assistance

Climate Change Management Act (CCMA) 2015 provides the regulatory framework to promote and manage climate compatible development through climate mitigation and adaptation activities. Under the act, the Climate Change Development and Authority (CCDA) was established and few of the main functions of the Authority are to (i) formulate, implement, publish and regularly update on the national and regional measures taken in climate mitigation activities in reducing the GHG emission (ii) to promote and cooperate in the development, application and diffusion, including transfer of technologies that controls, reduces or prevents GHG emission. In to promote climate actions, the CCMA has formulated the draft Energy Labelling and Minimum Energy Performance Standards for Appliances, Equipment and Lighting Products Regulation 2017. The draft regulation is currently under review by the Cabinet with expected approval by end of 2017. The draft regulation introduces Minimum Energy Performance Standards (MEPS) and Energy labelling standards for the following product classes: Refrigerators and freezers, Air Conditioners (ACs), Incandescent Lamps, Linear Fluorescent Lamps, Compact Fluorescent Lamps and Fluorescent Lamp Ballasts. The draft regulation also defines responsibilities of importers and manufacturers, responsibilities of suppliers to label Products and register of complying products

The overall objective of this technical assistance is to support the Government of PNG to execute and promote Energy Labelling and Minimum Energy Performance Standards for ACs. The scope of the technical assistance is limited ACs only hence the other product classes will not be directly addressed. Within ACs, the main focus of the MEPS and energy labelling standards is to ensure energy efficiency but also to ensure the phase out of Ozone Depleting Substances (ODS) in the applied refringent. The MEPS and energy labelling standards address both importers and domestic manufacturers of ACs.

The CTCN technical assistance consists of the following outputs:

I. A market assessment of AC systems currently being manufactured, imported and applied in PNG. The objective of the market assessment is to establish a baseline in terms of energy efficiency and refrigerant of applied AC systems; stock taking and classification of air conditioners; development of national database for ACs; and estimation of GHG emissions reduction potential from different levels of MEPs for ACs.

II. A gap assessment analysing the enabling environment for implementation, compliance and enforcement of the MEPS and energy labelling standards. The gap assessment will address institutional arrangements, mandates and responsibilities within the national authorities, processes for information sharing and the supporting policy and regulatory framework. Recommendations for further strengthening of the enabling environment as well as an implementation plan for the MEPS and energy labelling standards will be included.

III. An assessment and recommendations on technical foundation and processes of managing the MEPS and energy labelling standards. This output will assess options and provide

commendations regarding national certification of air conditioners, infrastructure for testing and information sharing, appropriate methods and working arrangements with national and international laboratories.

IV. A training programme for relevant staffs and stakeholders on implementation and management of the MEPS and energy labelling programme.

The outcome of this technical assistance is expected to support PNG on the implementation of the CCMA, Nationally Determined Contributions (NDC) to the UNFCCC as well as the Energy Labelling and Minimum Energy Performance Standards for Appliances, Equipment and Lighting Products Regulation 2017 focusing on ACs.

Agreement:

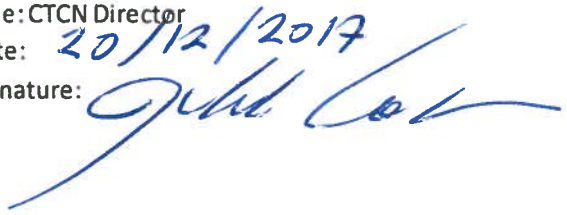
(If possible, please use electronic signatures in Microsoft Word file format)

National Designated Entity to the UNFCCC Technology Mechanism for which the Climate Technology Centre and Network is the operative arm

Name: Ruel Yamuna
Title: Managing Director
Date: 11/12/2017

Signature:

UNFCCC Climate Technology Centre and Network (CTCN)
Name: Jukka Uosukainen
Title: CTCN Director
Date: 20/12/2017
Signature:



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1. Background and context

The CCDA is the mandated government authority responsible for coordinating and implementing all activities related to climate change. The CCDA has recently adopted the CCMA and the Climate Compatible Development Management Policy (CCDM) both providing the framework to regulate and promote climate actions in PNG. The Conservation Environment and Protection Authority (CEPA) is in charge of the Refrigerant and Air Condition (RAC) sector and implements PNG's commitments under the Montreal Protocol and the phase out of ODS from the RAC Industries. CEPAs decisions are based on the Environment Act 2000.

Under CCMA, the draft Energy Labelling and Minimum Energy Performance Standards for Appliances, Equipment and Lighting Products Regulation 2017 is formulated and the main objective of the regulation, in accordance with Section 11(1)(c) of the Act, is to reduce anthropogenic emissions of greenhouse gases in the electricity generation sector. Electricity generation is a regulated sector under Section 53(2)(b) of the Act, the reduction of GHG emissions is expected to materialise by increasing the energy efficiency of electrical appliances, equipment and lighting products imported as well as manufactured in PNG. The regulation is addressing six product groups (Refrigerators and freezers, ACs, Incandescent Lamps, Linear Fluorescent Lamps, Compact Fluorescent Lamps, Fluorescent Lamp Ballasts) and a particular focus is made towards as the RAC sector and related equipment as these contribute to a large share of GHG emissions from electricity use.

In addition to reduce GHG emissions in the RAC sector, the CCDA has also worked collaboratively with the Conservation and Environment Protection Authority (CEPA) Unit to phase out the use of ODS in the RAC sector. It is envisioned that the phasing out of ODS will support the national AC manufacturing industry to tap into the use of cleaner alternative gases. Since PNG depends heavily on the import of AC systems, one of the key focus areas of CCDA and DEC is to create a database in order to categorise and monitor the refrigerants being imported in the ACs as well as energy efficiency of imported systems. Having such a database in place will enable the national authorities to effectively regulate imported refrigerants and AC systems to be in line with PNG's efforts to phase out HCFC gases in refrigerant and to promote air conditioning system with higher efficiency.

CCDA is currently in the process of bringing the Energy Labelling and Minimum Energy Performance Standards for Appliances, Equipment and Lighting Products Regulation 2017 into effect. The regulation is expected to be approved by the Cabinet by the end of 2017.

2. Problem statement

PNG has been an importer of AC equipment over the years. Due to an unregulated market in PNG, a large share of the imported AC equipment has been energy inefficient and contains ODS. Similar conditions have occurred for the national manufacturing of the AC equipment.

In order to address this issue, the Government of PNG has introduced the Energy Labelling and Minimum Energy Performance Standards for Appliances, Equipment and Lighting Products Regulation 2017. While the regulation will provide the regulatory framework for presenting import and application of energy inefficient AC systems containing ODS, PNG is facing limited capacity and

technical knowledge to effectively implement and manage the MEPS and energy labelling standards.

3. Logical Framework for the CTCN Technical Assistance:

	Months							
Objective: The overall objective of this technical assistance is to support the Government of PNG to execute and promote the Energy Labelling and Minimum Energy Performance Standards for ACs in or to limit the import and manufacturing of energy inefficient AC systems as well as phasing out the use of ODS in applied refrigerants.								
Outcome: Enhanced the enabling environment, data foundation and capacities for implementing Minimum Performance Standards and Energy Labelling Standards for AC systems.	1	2	3	4	5	6	7	8
Output 1: A market assessment, classification and database of ACs imported and manufactured in PNG, development of GHG baseline for ACs								
Activity 1.1: Undertake a market assessment to understand the (i) types of AC technologies being imported and manufactured in PNG, main channels for import and distribution, price levels, value chain, etc. (ii) current energy efficiency level of the AC equipment in the country as well as ODS content in applied. The market assessment will include collection of empirical data from importers, national authorities (customs) and manufacturers as well as interviews with stakeholders.								
Activity 1.2: By applying pre-defined classifications methodologies and definitions for AC systems[1], undertake a classification and grouping of the national AC systems in PNG. Classified and grouped data should be presented in Excel database which will serve as an initial national inventory for AC systems.								
Activity 1.3: Use market assessment data and CDM approved Standard Baseline tool[2] to establish standardized baseline for ACs as well as estimate GHG emissions reduction potential of the MEPS and labelling. The baseline will not be subject to UNFCCC approval.								
Deliverable 1.1: Market assessment of AC systems being imported and manufactured in PNG as described in activity 1.1.			*					
Deliverable 1.2: Initial national inventory for AC systems and estimation of GHG emission reduction potential by the MEPS and energy labelling standards as defined in activity 1.2.			*					
Deliverable 1.3: Standardized baseline for ACs as well as estimate GHG emissions reduction potential of the MEPS and labelling as defined in activity 1.3			*					
Output 2: A gap assessment analysing and providing recommendations on the enabling environment for implementation, compliance and enforcement of the MEPS and energy labelling standards.								
Activity 2.1: Assess the existing energy regulations and policy and framework to support implementation of MEPs and Labelling programme in PNG.								
Activity 2.3: Undertake gender mainstreaming assessment and related recommendations.								
Activity 2.4. Based on activity 2.1, 2.2 and 2.3 identify gaps and provide recommendations for an effective implementation of the								

[1] The classification should be done in accordance with the national MEPS and energy labelling standards as per the CCMA as well as international best practises.
[2] Link to UNFCCC methodology: http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-29-v1.pdf/history_view

MEPS and labelling programme for AC. Furthermore, design an operational implementation plan for the MEPS and energy labelling.								
Deliverable 2.1: Assessment of energy regulations and policy and framework supporting MEPS and labelling for ACs.						*		
Deliverable 2.2: Assessment of institutional structures, mandates and responsibilities for the implementation of MEPS and labelling for ACs.						*		
Deliverable 2.3: Gender mainstreaming assessment.						*		
Deliverable 2.4: Identification of gaps, provide recommendations and define an implementation plan for the MEPS and energy labelling.						*		
Output 3: Technical assessment of certification methods and processes for AC systems								
Activity 3.1: Undertake an assessment of national capacities and options for certification of AC systems in accordance with the MEPS and energy labelling standards. The assessment must identify the most feasible certification method to be applied by the national authorities in PNG. Assed certification methods such includes adopting mutual recognition agreements with international laboratories, possibility of establishing a domestic laboratory for testing, self-certification etc.								
Deliverable 3.1: Report on national capacities and options for certification of AC systems in accordance with the MEPS and energy labelling standards.							*	
Output 4: Training programme for relevant staff and stakeholders on implementation of MEPS and energy labelling standards								
Activity 4.1: Applying the topics and findings from Output 1, 2 and 3, develop a training programme for relevant national authorities engaged with the implementation of the MEPS and energy labelling standards for ACs.								
Activity 4.2: Conduct 1 week training programme for each of the following thematic focus areas: i) Policy and regulation; ii) import customs and tracking/classifying of AC equipment; iii) certification and technical assessment. Each training will include app. 20 relevant stakeholders.								
Deliverable 4.1: Training programme, training reports from three training sessions, agenda and training evaluations								*

4. Resources required and itemized budget:

Activities and Outputs	**Input: Human Resources** (Title, role, estimated number of days)	**Input: Travel** (Purpose, national vs. international, number of days)	**Inputs: Meetings/events** (Meeting title, number of participants, number of days)	**Input: Equipment/Material** (Item, purpose, buy/rent, quantity)	**Estimated cost (USD)** Please accumulate the costing at Activity and Output level and provide an estimated costing range for the total Response Plan	
					Minimum	**Maximum**
Output 1: A market assessment, classification and stocktaking of air conditioner systems currently being manufactured, imported and applied in PNG.						
Activity 1.1: Undertake a market assessment of ACs imported and manufactured in PNG.	Market assessment and inventory international expert (16 days) Market assessment and inventory national expert (20 days) NDE officer to provide contacts and facilitate national feedback	International travel of one expert and national travel (covering entire output 1)			Cost for int. expert: USD 9,600 Cost for national expert: USD 2,000 Cost for travel: USD 1,000	Cost for int. expert: USD 12,800 Cost for national expert: USD 4,000 Cost for travel: USD 2,000
Activity 1.2: Undertake a classification, grouping and inventory database.	Energy efficiency and market assessment int. expert (10 days)				Cost for expert: USD 6,000	Cost for expert: USD 8,000
Activity 1.3: Develop standardized GHG baseline and estimate GHG reduction potential.	Energy efficiency and market assessment international expert (7 days) Energy efficiency and market				Cost for int. expert: USD 4,200 Cost for national expert: USD 1,200	Cost for int. expert: USD 5,600 Cost for int. expert: USD 2,400

	assessment national expert (12 days)					
Total for output 1	**33 days by int. expert. 32 days by national expert.**	**1 int. mission**			**USD 24,000**	**USD 34,800**
Output 2: A gap assessment analysing and providing recommendations on the enabling environment for implementation, compliance and enforcement of the MEPS and energy labelling standards.						
Activity 2.1: Assessment of policy and regulatory environment.	Policy and regulatory framework int. expert (10 days) Policy and regulatory framework national expert (10 days)				Cost for int. expert: USD 6,000 Cost for int. expert: USD 1,000	Cost for int. expert: USD 8,000 Cost for int. expert: USD 2,000
Activity 2.2. Assessment of institutional arrangements, mandates and responsibilities within the national authorities to support the implementing the MEPS and energy labelling standards.	Policy and regulatory framework int. expert (7 days) Policy and regulatory framework national expert (10 days)				Cost for int. expert: USD 4,200 Cost for national expert: USD 1,000	Cost for int. expert: USD 5,600 Cost for national expert: USD 2,000
Activity 2.3: Undertake a gender mainstreaming assessment	Gender int. expert (2 days) Gender national expert (5 days)				Cost for int. expert: USD 1,200 Cost for national expert: USD 500	Cost for int. expert: USD 1,600 Cost for national expert: USD 1000

Activity 2.4: Based on activity 2.1, 2.2 and 2.3, identify gaps and provide recommendations for an effective implementation of the MEPS and energy labelling standards covering all analysed items.	Policy and regulatory framework int. expert (5 days) Policy and regulatory framework national expert (8 days)				Cost for int. expert: USD 3,600 Cost for national expert: USD 800	Cost for int. expert: USD 4,000 Cost for national expert: USD 1,600
Total for Output 2	**24 days by int. expert. 32 days by national expert**				**USD 11,300**	**USD 15,800**
Output 3: Technical assessment of certification methods and processes for AC systems						
Activity 3.1: Undertake an assessment of national capacities and options for certification of AC systems in accordance with the MEPS and energy labelling standards.	Testing and certification int. expert pertaining to energy efficiency of AC systems (15 days) Testing and certification national expert pertaining to energy efficiency of AC systems (15 days)	International travel of one expert	Individual meetings with key stakeholders		Cost for int. expert: USD 9,000 Cost for national expert: USD 1,500 Cost for travel: USD 1,000	Cost for int. expert: USD 12,000 Cost for int. national: USD 3,000 Cost for travel: USD 2,000
Total for Output 3	**15 days by int. expert. 15 days by national expert**	**One int. mission**			**USD 11,500**	**USD 17,000**
Output 4: Training programme for relevant staff and stakeholders on implementation of MEPS and energy labelling standards						
Activity 4.1: Develop a training programme for relevant national	Market assessment and				Cost for experts: USD	Cost for experts: USD 4,800

authorities.	inventory expert (2 days) Policy and regulatory framework expert (2 days) Testing and certification expert (2 days)				3,600	
Activity 4.2: Conduct 1 week training programme for each of the following thematic focus areas: i) Policy and regulation; ii) import customs and tracking/classifying of AC equipment; iii) certification and technical assessment.	Market assessment and inventory int. and national experts (5 days each) Policy and regulatory framework int. and national expert (5 days each) Testing and certification int. and national expert (5 days each)	One int. mission per training (3 in total)	One workshop venue per training (3 in total)	Training material and hand-outs	Cost for int. experts: USD 9,000 Cost for national experts: USD 1,500 Cost for travel: USD 3,000 Cost for venue: USD 1,000 Cost for training material: USD 200	Cost for experts: USD 12,000 Cost for national experts: USD 3,000 Cost for travel: USD 6,000 Cost for venue: USD 2,000 Cost for training material: USD 400
Total for Output 4	**21 days by international experts. 15 days by national experts**	**3 int. missions**	**3 workshop venues**	**Training material and hand-outs**	**USD 18,300**	**USD: 28,200**
Estimated range of costing for the entire Response Plan					**USD 65,100**	**USD 95,800**

5. Profile and experience of experts

Experts required	Brief description of required profile
Energy efficiency policy and regulatory framework international and national experts	• Experience as a technical expert or implementer on standard and labelling processes, technical content, implementation and related issues, including experience in ACs sector and testing labs. • Knowledge and practical experiences in integrated policy approach encompasses: minimum energy performance standards (MEPS); supporting policies; monitoring, verification and enforcement (MVE); and, environmentally sound management. • Excellent skills in policy and technical writing. • Experience with multi-cultural teams. • Excellent communications skills. • Excellent desk research and analytical skills, combining air conditioners technology knowledge and good understanding of cooling vis-à-vis climate change mitigation, energy efficiency and developing country needs. • Experience in capacity building and trainings • Fluent English.
Market assessment and inventory international and national experts	• Experience as a market assessment expert on energy-efficient AC systems in region • Knowledge in the area of energy efficiency policies with a focus on developing countries in the region. • Excellent skills in technical writing. • Experience with multi-cultural teams. • Excellent communications skills. • Excellent desk research and analytical skills, combining air conditioners technology knowledge and good understanding of cooling vis-à-vis climate change mitigation, energy efficiency and developing country needs. • Experience in capacity building and trainings • Fluent English.
Testing and certification international and national experts	• Experience in technical assessments and certification standards for AC systems in the region • Experience with MEPS and energy labelling standards for AC systems, incl. underlying testing and certification. • Excellent skills in policy and technical writing. • Experience with multi-cultural teams. • Excellent communications skills. • Excellent desk research and analytical skills • Experience in capacity building and trainings

	• Fluent English.
Gender international and national experts	• Experience in gender assessments and recommendations in the region

6. Intended contribution to impact over time

With the CTCN technical assistance successfully implemented, the Government of PNG will have enhanced capabilities to implement Energy Labelling and Minimum Energy Performance Standards for Air Conditioners and to phase out equipment containing ODS. By strengthening the data foundation and understanding of imported equipment, application of gap assessment and capacity building of national authorities, the enabling environment for enhancing energy efficiency in air conditioning systems and to phase out ODS will be improved.

With a firm application of MEPS for air conditioning systems, energy efficiency and GHG emission reductions will be secured. Of similar importance, the CCMA will be in good position to replicate the application of MEPS and overall regulation to other types of equipment (e.g. lighting, motors, etc.) which will contribution GHG mission reductions at scale and overall transformational change in PNG.

7. Relevance to NDCs and other national priorities

In October 2009, the Government launched a 40-year development strategy: PNG Vision 2050. The intention is to transform the nation's mind-set and attitude and align the people, institutions and systems into educated, healthy and prosperous society. The vision stresses the importance of engaging the community into the process of building a strategy for sustainable development for all. Vision 2050 is underpinned by seven Strategic Focus Areas: 1. Human Capital Development, Gender, Youth and People Empowerment; 2. Wealth Creation; 3. Institutional Development and Service Delivery; 4. Security and International Relations; 5. Environmental Sustainability and Climate Change; 6. Spiritual, Cultural and Community Development; and 7. Strategic Planning, Integration and Control. It reflects the Government's aspiration to improve PNG's human development index through human capital development, economic growth, better service delivery, enhanced security and international relations, environment and climate sustainability, improved community development and sound political leadership and structures. Vision 2050 emphasizes that environmental sustainability and addressing climate change issues are crucial in the achievement of the developmental goals and visions envisaged by Government of Papua New Guinea by 2050.

In May 2015, the PNG Government passed the Climate Change Bill to become the first nation in the Pacific region to implement a law that will, among other things, minimise the effects of climate change as a result of infrastructural development.

As per the INDC, the main mitigation opportunities exist for the country is in the electricity supply sector, energy efficiency, transport and forestry. However, it is felt that considerable assistance will be needed in terms of human resource development and institutional support, technology transfer and capacity building in order to carry out the mitigation measures. Hence, this technical assistance will help the country in developing the institutional framework and capacity building of local stakeholders in carrying out the mitigation measures while focusing on AC manufacturing and use.

8. Linkages to relevant parallel on-going activities:

Daikin PNG as one of the leading industry companies in PNG provides heating, ventilating, air conditioning and refrigeration solutions to a broad range of residential, commercial and industrial customers throughout PNG. Engagement with Daikin PNG is foreseen during the implementation of the technical assistance.

Moreover, in line with the mission and vision of CCDA to build a robust climate resilient and carbon neutral pathway for climate compatible development in PNG, the mitigation unit under the REDD+ and Mitigation Division in CCDA has got a proposal approved by GEF on work related to Mitigation initiatives nationwide. The Facilitating Renewable Energy & Energy Efficiency Applications for Greenhouse Gas Emission Reduction (FREAGER) proposal under the Mitigation Branch was approved and the project will initiate the implementation in mid-2018. The FREAGER project will develop and facilitate implementation of low carbon growth plans, policies programs and projects in the country. It will also be focused on the coordination and promotion of the development of renewable energy sources and other low carbon growth initiatives in all the sectors which will greatly contribute to realising Energy Efficiency applications to curb emissions of GHGs.

PNG Power Limited is a state-owned monopoly enterprise that is responsible for the production and distribution of electricity throughout Papua New Guinea. The PNG Power Limited has started a large-scale project on rural electrification from renewable energy sources and promotion of energy efficient electrical appliances. Indeed, in terms of energy efficiency of appliances, limited actions have been initiated in Papua New Guinea and this project will be an ice breaking initiative to stimulate and encourage stakeholders to promote energy efficient applications in the country.

Furthermore, the Pacific Appliance Labelling and Standards (PALS) programme is also assisting Pacific Island Countries to develop and implement in-country appliance performance standards and labelling programmes. Target electrical appliances are refrigerators and freezers, air conditioning units and lighting. The PALS assisted CCDA in drafting the Energy Labelling and Minimum Energy Performance Standards for Appliances, Equipment and Lighting Products Regulation 2017. Engagement with the PALS programme will also be foreseen during the implementation of the CTCN technical assistance.

Under the Renewable Energy and Energy Efficiency Partnership (REEEP) programme, the International Institute for Energy Conservation – Asia (IIEC Asia) has developed a technical analysis of appliance markets in PNG. The analysis is from 2012 and provides an initial stocktaking of imported ACs, country of origin and monetary value for the period 2008-2010. The CTCN TA will build upon applied data and findings from the REEEP programme.

9. Anticipated follow up activities after this technical assistance is completed:

Once the CTCN technical assistance is provided, CCDA can adopt the recommendations and implementation plan for the MEPS and energy labelling standards for ACs. Similarly, the provided GHG baseline and estimation of GHG reduction potential will be important to emphasise the importance for the MEPS and energy labelling towards national and international stakeholders. With a combination of technical recommendations and targeted trainings, the CCDA have enhanced capacities to implement Energy Labelling and Minimum Energy Performance Standards for Appliances, Equipment and Lighting Products Regulation 2017. A successful implementation of the regulation will result in significant GHG emissions reductions and reduction of ODS in PNG.

10. Gender and co-benefits:

Imbedded in design of the activities:	A gender mainstreaming analysis will be integrated into the gap analysis and recommendations. A gender expert will be assigned to carry out an assessment and evaluation regarding gender mainstreaming during the implementation of the TA. Please see guidance on the gender mainstreaming analysis at CTCN's website: https://www.ctc-n.org/technologies/ctcn-gender-mainstreaming-tool-response-plan-development
Gender and co-benefits intended as result of the activities:	This CTCN assistance will encourage and actively promote gender equality of stakeholders' participation to the training and will preciously take into account women's opinion on the activities development.

11. Main in-country stakeholders in implementation of the technical assistance activities:

Using the table below, please list and describe the role of in-country stakeholders, participants and beneficiaries who will be involved in or directly consulted during implementation of the assistance.

In country stakeholder	Role in implementation of the technical assistance
Climate Change and Development Authority (CCDA)	Act as the national coordinating agency for the execution of this technical assistance. Designate a focal point for day to day coordination and execution of the project.
Conservation, Environment and Protection Authority	Support and facilitate the implementation team in market assessment, providing existing in-country information, facilitate stakeholder consultations/meetings etc.
PNG Power Limited (PPL)	PPL is undertaking a regulatory role on behalf of the Independent Consumer and Competition Commission (ICCC). These responsibilities include approving licenses for electrical contractors, providing certification for models of electrical equipment and appliances to be sold in the country and providing safety advisory services and checks for major installations.

Department of Education	Training and public awareness
National Capital District Commission (NCDC)	NCDC's Regulatory Services Department caters for all regulatory control within the capital covering Physical Planning, Licensing and Development Control. The objective of this division is to ensure that the developments are orderly, planned and well-coordinated. It identifies, designs, constructs, and maintains infrastructures and building programmes to approved standards. It also ensures that the environment is sound, clean and conforming to World Health Standards. This develops an efficient and appropriate public system and to design a planned settlement program. Department of Regulatory Services consists of five major divisions with Physical Planning, Development Control, Building, Lands and Licensing. The division also runs a capacity building project known as Hetura Project in conjunction with Townsville City Council and Department of National Planning and Health.
Customs PNG	Share information on the current practice for imports of AC equipment and supporting data. Second, officials from the customs are targeted for the training programme to understand the requirement and criteria so that the imports can be restricted in accordance with the MEPS and energy labelling standards.
Department of Petroleum and Energy	Support and facilitate the implementation team in market assessment and provide existing in-country information
RAC Industries (Daikins, SPAC, BrainBell...)	Support in market assessment and possible capacity need assessment of the country with regard to air conditioning systems, discussions regarding the existing and recommended regulatory framework required for promoting high efficient ACs.

12. SDG Contributions:

https://sustainabledevelopment.un.org/partnership/register/.

Goal	Sustainable Development Goal	Direct contribution from CTCN TA (1 sentence for top 1-3 SDGs)
1	End poverty in all its forms everywhere	
2	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture	
3	Ensure healthy lives and promote well-being for all at all ages	
4	Ensure inclusive and equitable quality education and promote life-long learning opportunities for	

	all	
5	Achieve gender equality and empower all women and girls	
6	Ensure availability and sustainable management of water and sanitation for all	
7	Ensure access to affordable, reliable, sustainable, and modern energy for all (consider adding targets for 7)	
	7.1 - By 2030, ensure universal access to affordable, reliable and modern energy services	
	7.2 - By 2030, increase substantially the share of renewable energy in the global energy mix	
	7.3 - By 2030, double the global rate of improvement in energy efficiency	Would foster energy efficiency in Air Conditioning sector by promoting appropriate policy and regulatory framework and by restricting the import and use of energy-inefficient products and
	7.a - By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology	
	7.b - By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States, and land-locked developing countries, in accordance with their respective programmes of support	
8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	
9	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	
10	Reduce inequality within and among countries	
11	Make cities and human settlements inclusive, safe, resilient and sustainable	
12	Ensure sustainable consumption and production patterns	
13	Take urgent action to combat climate change and its impacts	The technical assistance will contribute to enhanced regulation and enforcement of applied ACs in PNG which will result in GHG emission reductions.
	13.1 - Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries	
	13.2 - Integrate climate change measures into	The technical assistance would help in

	national policies, strategies and planning	meeting the energy efficiency activities as mentioned in the Climate Change Management Act 2015(CCM) and with the Climate Compatible Development Management Policy (CCDM)
	13.3 - Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning	The technical assistance aims to enhance national capacities in implementing energy efficiency measures in Air conditioning sector.
	13.a - Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly $100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible	
	13.b - Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities	
14	Conserve and sustainably use the oceans, seas and marine resources for sustainable development	
15	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	
16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	
17	Strengthen the means of implementation and revitalize the global partnership for sustainable development	

13. Classification of technical assistance:

Please tick off the relevant boxes below	Primary	Secondary
1. Technology identification and prioritisation	☐	☐
2. Research and development of new climate technologies	☐	☐
3A. Feasibility studies for specific known climate technology options	☐	☒
3B. Piloting of known technologies in local conditions	☐	☒

4A. Law, policy and regulatory reform recommendations	☒	☐
4B. Sector specific roadmap or strategy design	☐	☐
5. Finance facilitation and market creation	☐	☐

14. Monitoring and Evaluation process

Upon contracting of the implementing partners to implement this Response Plan, the lead implementer will produce a monitoring and evaluation plan for the technical assistance. The monitoring and evaluation plan must include specific, measurable, achievable, relevant, and time-bound indicators that will be used to monitor and evaluate the timeliness and appropriateness of the implementation. The CTCN Technology Manager responsible for the technical assistance will monitor the timeliness and appropriateness of the Response Plan implementation. Upon completion of all activities and outputs, evaluation forms will be completed by the (i) NDE about overall satisfaction level with the technical assistance service provided; (ii) the Lead Implementer about the knowledge and learning gained through delivery of technical assistance; and (iii) the CTCN Director about timeliness and appropriateness of the delivery of the activities and outputs.