ECPA Energy and Climate Partnership of the Americas

NATIONAL PRIORITIES

FOR ADVANCING THE ENERGY TRANSITION IN THE AMERICAS

INTRODUCTION

This document gathers the national energy priorities of the countries of the Americas that participated in the preparatory process for the III Ministerial Meeting of the Energy and Climate Partnership of the Americas, ECPA.

These priorities were analyzed during the final preparatory meeting, held in Trinidad and Tobago in April 2017, and constitute a synthesis that orients the assessments, objectives and proposals of each country with regards to the issues developed in the framework of ECPA's pillars. They are also the basis for the definition of the collaborative activities that form part of the ECPA Action Plan.

This document is presented at the III ECPA Ministerial Meeting as the result of a hemispheric effort carried out between 2015 and 2017, and represents a valuable contribution directly from the countries to mark a path towards an energy transition in the Americas.

Viña del Mar, September 8, 2017

ANTIGUA AND BARBUDA

The Government of Antigua and Barbuda is pursuing an ambitious program towards achievements in sustainable energy.

This includes renewable energy development with installation of almost 20 percent of peak capacity expected to be on-line during 2017. Other efforts at renewable energy have included establishing the legal framework for renewable energy penetration into the grid through the Renewable Energy Act (2015), removal of duties and taxes on imported renewable energy technologies, and plans for strengthening resilience to climate change through adoption of renewable technologies at critical infrastructure.

In relation to energy efficiency, efforts continue to promote energy efficiency through public awareness and education, increasing awareness in the public sector, and transitioning to more energy efficiency applications such as a shift to LED street lighting.

The critical priority area for Antigua and Barbuda is the issue of financing for sustainable energy.

As a small island State categorized as a middle income country, Antigua and Barbuda faces particular challenges in raising money in international capital markets as well as in obtaining concessionary financing from multilateral or bilateral development agencies. This serves as a severe constraint to taking advantage of the sustainable development opportunities which are presented through adoption of sustainable energy technologies.

Specific priority areas for international cooperation and support for Antigua and Barbuda within the ECPA framework include:

- Upgrading and modernization of transmission and distribution networks
- Waste-to-energy applications
- Development of wind energy
- Sustainable transportation options including adoption of electric vehicles
- Energy efficiency in the tourism sector.

ARGENTINA

In line with ECPA's second pillar (Renewable energy: steps to accelerate clean energy deployment via project support, policy dialogues, scientific collaboration, and the clean energy technology network), the Government decided to boost development of renewable energies in the country.

The first step was to enact decrees PEN 531/2016 and 882/2016, which introduce rules governing Law 27.191. That Law establishes the goals of *"having at least 8 percent of electricity consumption supplied by renewable sources by December 31, 2017, and 20 percent by December 31, 2025."* This means that by 2025 the country will need to generate more than 10 GW of additional energy from renewable sources, up from the current level of 0.8 GW which only covers 1.8 percent of demand.

To meet those new goals, the Government launched *RenovAr*, a public tender program that envisages tax incentives and financial assistance mechanisms, as well as stronger regulations and contracts designed to promote investment in electricity generation projects based on renewable sources.

The expected benefits of *RenovAr* are direct investment in generation projects that will enable supply and ensure Argentina's energy mix diversification; reduction of emissions to contribute to climate change mitigation; creation of new jobs; and annual savings in fossil fuels, among others. During the first round of tenders it is expected to award 59 projects for a total of 2,423.5 MW at a weighted price of US$57.44 per megawatt/hour (MW/h).

These contracts will bring the country savings for more than US$5 billion over the projects' twenty-year lifetime. Round 2 of *RenovAr* is scheduled to be launched during the second quarter of 2017.

The Third Ministerial Meeting of the Energy and Climate Partnership of the Americas (ECPA), to be held in Chile in September 2017, will provide an excellent opportunity to share this experience and future plans for promoting renewable energy sources, as well as to learn from the contributions of other countries in the region.

BRAZIL

This concept note addresses the issue of energy efficiency as one of the seven ECPA Fundamental Pillars. Brazil would like to focus on the enhancement of its Energy Efficiency National Programs, policies and legal framework in order to achieve better results in the energy sector, while harvesting social benefits.

The Federal Government of Brazil has implemented several energy efficiency policies since the early 80's. Currently, there are four major national programs in place: (i) PROCEL – National Power Conservation Program, led by the Ministry of Mines and Energy and implemented by Eletrobrás; (ii) CONPET - National Program for Oil and Natural Gas Conservation, led by the Ministry of Mines and Energy and implemented by Petrobras; (iii) PEE - Energy Efficiency Utilities Program, run by the Brazilian Electricity Regulatory Agency (ANEEL) and implemented by power distribution utilities; and (iv) PBE – Brazilian Labelling Program, led by the Ministry of Industry and Trade and implemented by Inmetro, the National Institute of Metrology, Quality and Technology.

Additionally, The Federal Government created a legal framework for supporting the discontinuation the sale of inefficient appliances. In 2001, Law 10.295 was enacted in order to regulate mandatory "Minimum Energy Performance Standards" (MEPS) for appliances and buildings under the oversight of the Ministry of Mines and Energy. So far, nine product categories have been regulated. On the governance front, the Energy Efficiency Technical Committee was established within the National Council for Energy Policy (CNPE), allowing for synergies with other government policies in this area.

Since its inception in 1986, nearly USD 1 billion has been invested by PROCEL, achieving 92.2 billion kWh in energy savings. In 2015 alone, 11.7 billion kWh were saved - equivalent to the annual energy consumption of six million households - avoiding CO2 emissions tantamount to half a million vehicles in one year. PEE has invested a figure in the range of USD 2.5 billion since 1998, achieving 71.4 billion kWh in energy savings and 3 million kW of peak demand reduction. Concerning the use of oil and gas, CONPET and PBE were successful in creating a light vehicles labelling program which certified around 1.102 models of 35 automakers, and projections show that a 100% of the market will be attained by the end of 2017. Furthermore, PBE has implemented energy efficiency labelling systems in 25 different product categories.

Since Brazil is regionally diverse, there is a need to enhance and adapt national policies and their respective evaluation methodologies to local needs. In this context, topics to be addressed by ECPA could include:

- Energy efficiency in transportation
- Energy efficiency indicators and benchmarks for industrial sectors
- Buildings indicators and benchmarks
- Energy management systems in industrial sector and SMEs
- Street lighting management systems
- Institutional arrangements and frameworks
- Finance schemes toward market transformation.

CANADA

Methane is a short-lived yet potent greenhouse gas (GHG) with a global warming potential more than 25 times greater than carbon dioxide. In 2014, the oil and gas sector contributed 44 percent (or 48 megatonnes of carbon dioxide equivalent) of Canada's methane emissions.

Reducing methane is recognized by oil and gas companies, regulators, academic experts, and environmental non-governmental organizations (ENGOs) as one of the lowest cost opportunities to make significant GHG reductions.

Government of Canada's Objectives/Targets for Methane Emissions Reductions

In March 2016, Canada's Prime Minister Trudeau committed to reducing methane emissions from the oil and gas sector by 40%-45% below 2012 levels by 2025 (equating to about 20Mt/year in emissions reductions). To achieve this target, he also committed to publishing draft federal methane regulations for the oil and gas sector in early 2017.

Actions undertaken

Canada's Approach to Methane Emissions Reduction Regulations

Environment and Climate Change Canada (ECCC) is developing proposed federal methane regulations under the *Canadian Environmental Protection Act* (CEPA). Canada's proposed regulations will address flaring, venting and fugitive emissions from facilities and activities that are responsible for the extraction, production, processing and transportation of crude oil and natural gas. The regulations will apply to new and existing sources of emissions; with regulated facilities including oil and gas wells and batteries, natural gas processing plants, compressor stations, supporting pipelines, storage tanks, pneumatic devices and compressors.

The first requirements will come into force as early as 2020, with the remaining requirements coming into force by 2023. It is expected that addressing methane from oil and gas sector will be equivalent to taking about 5 million passenger vehicles off the road each year and will help protect Canadians' health by improving air quality through reducing harmful volatile organic compound emissions, which are often emitted from the same sources and contribute to smog.

The Government of Canada is of the view that, in the longer term, developing Canadian oil and gas resources in cleaner, more sustainable ways will be critical for the sector to continue contributing to Canadian prosperity. Efforts to increase the sustainability of Canada's resource sector will encourage investment and support the creation of a more resilient industry.

Specific needs that may be addressed through ECPA

Prior to the election of the new US administration, Canada, the US and Mexico had agreed to advance trilateral methane emissions reduction efforts in the oil and gas sectors as part of commitments coming out of the North American Leaders Summit (NALS) in June. A trilateral workshop took place in Mexico in December 2016 to share best practices.

NRCan's Innovation and Energy Technology Sector (IETS), the Alberta Energy Regulator (AER) and Clearstone Engineering of Calgary, as well as ECCC, attended this event and showcased ongoing Canadian funded methane mitigation project activity in Canada and Mexico. IETS and the AER are currently collaborating on a $2.1 million NRCan Energy Innovation Program (EIP) funded project to identify high-impact emission reduction opportunities and develop strategic jurisdictional emissions reduction strategies that are both cost-effective and of sufficient impact to quantifiably and verifiably reduce emissions. The governments of Mexico and the USA expressed interest in the high degree of jurisdictional transferability of this work and the significant improvements to national emissions inventory certainty that would result. Clearstone Engineering and IETS presented recent Canadian funded CCAC project activity results from Pemex facilities, which identified avoidable methane and VOC emissions valued at greater than US $83 million per year and GHG reductions potential of 8.2 Mt CO_2e from methane and VOC venting and flaring mitigation. Analogous project results from Canadian funded CCAC and Fast Start Financing funded projects in Colombia and Mexico, which have been presented at numerous international events (including the September 2015 Canada led HOWG in Bogotá Colombia) have been identified by ECPA member states as being of significant strategic interest.

At the December 2016 NALS event in Mexico, the US and Mexico requested that Canada consider hosting a methane mitigation workshop in mid-2017. In light of the new US administration, NRCan is currently considering various options to pursue Canada's efforts on global methane emission reductions.

CHILE

Chile launched its National Energy Policy towards the end of 2015, setting a series of targets in terms of security of supply, energy access, and sustainability of the energy sector for the 2035 –2050 period. The policy was designed based on a dialogue process with all sectors of society and the public, carried out nationwide during an 18-month period.

This energy policy will allow the country to advance decisively toward energy sustainability in all respects. During the upcoming period, the country will focus its efforts on two specific aspects within this framework: Energy infrastructure and regional integration.

I. Pillar 4: Energy infrastructure

Description:

Incorporating renewables in electricity systems in significant quantities poses an array of challenges. For one thing, it requires expanding the security of the electricity system, bearing in mind the inherent variability of many renewable sources (e.g., wind and solar). Moreover, renewable energies often pose challenges as a result of their geographic location and, therefore, require of a transmission infrastructure design that enables their incorporation. For example, in some cases, renewable energy projects are located at a great distance from consumption hubs and, at times, from each other. In other instances, distributed generation models are needed to allow projects to connect to the grid or enable those that generate their own electricity to inject their output.

Actions by Chile:

Chile has taken steps to address these challenges: Its recently enacted Transmission Law, Net metering, the connection of the country's two main electrical systems (SIC and SING) by the end of 2017, working channels with local communities on energy projects, and dialogue with neighboring and other countries in the region for moving toward electrical interconnection, among other measures.

Results and replication potential:

Chile is willing to share its experience and lessons learned with other countries in the region, as they believe that this information will be a useful input for policy design for countries facing similar challenges.

Specific need that the could be addressed through ECPA:

The relationship between energy infrastructure and renewable energy is a global challenge, including for the most advanced countries on the subject. Therefore, ECPA could play a key role in establishing liaisons with experts, identifying cutting-edge policies at the international level, coordinating knowledge management, and creating opportunities to exchange experiences and best practices.

II. Pillar 6: Regional energy integration

Description:

Regional integration is key for sustainable development in the region, not only from the point of view of enhancing the security and robustness of national energy systems, but also in terms of complementarity of electricity generation based on renewable sources. In addition, currently, one of the main barriers to greater incorporation of certain renewable energy sources in the energy mix is their intermittence. That is precisely where regional interconnection is hugely important, given the security and complementarity that it brings to our systems.

Actions by Chile:

Chile is making progress along this path with its neighbors, increasing electrical and natural gas interconnection with Argentina, and moving toward a future electrical interconnection line between the cities of Arica in Chile and Tacna in Peru. In addition to bilateral and multilateral efforts, we have also secured international cooperation funds from other countries and multilateral lenders to finance technical studies in support of our endeavors.

Results and replication potential:

At the III ECPA Ministerial Meeting this September, the IDB will present its study on regional energy integration in South America. We have also noted interest on the part of multilateral agencies in supporting interconnection-related initiatives.

COLOMBIA

Bearing in mind the redefinition of the ECPA pillars at the Panama meeting held in 2016, and the current situation in Colombia on sustainable energy matters, and in light of the new 2017-2022 PROURE [*Program for the Rational and Efficient Use of Energy*] Indicative Action Plan, adopted by the Ministry of Mines and Energy, through resolution 41286 of December 30, 2016, the following proposal is submitted for consideration in the context of the first pillar:

"Promote the development of Energy Efficiency Policies in the Region through a cooperation and exchange framework that includes implementing best practices in specific sectors, promoting awareness and education on environmental/clean energy issues, and consolidating programmatic and regulatory schemes through human resource training, program and project management, and operation."

AREA: Education on energy efficiency and clean energy

1. Description of the priority topic within sustainable energy

Considering that the use of energy resources should be efficient–not only as a response to climate change, adverse economic situations, or the inevitable depletion of some, but also as a moral obligation to promote sustainability–education actions are essential. Certain studies, including a European Union study in 2011, define education as one of the most cost-effective energy efficiency strategies.

In light of the current context, it is urgently important to provide structural education to the general public on energy efficiency, so that in the medium and long term, this knowledge is integrated into their daily lives. It would also facilitate the management and decision making of those in charge of formulating and implementing policies on the matter, and whose work demands knowledge this field.

2. Actions taken by the Government of Colombia

Since the formulation of PROURE 2010-2015 Indicative Action Plan, Colombia has included this line of action as one of its cross-cutting subprograms. In 2010, the UPME (Colombia's national mining and energy planning unit) collaborated in an academic partnership with Juan Pablo Aljure León (Master's thesis completed at the Florida Institute of Technology) to develop an initial proposal to define a methodology to incorporate energy efficiency and unconventional energy sources into formal education (pre-school, primary, and secondary school). In 2011, this methodology was modified and a pilot program was conducted with education institutions at all levels in several Colombian cities. In 2013, additional pilot programs were carried out in non-interconnected zones to raise awareness among the secretariats of education, teachers, and students. The following publication contains the results of this work, as well as the principles and details on how this methodology was developed:

Guide for training teachers on energy (available at Si3oea.gov)

A new pilot program was conducted in 2015 in the fringes of the World Energy Council meeting held in Cartagena, Colombia. Some of the city's public schools participated in the program, which included workshops with teachers and students, providing teachers with basic training materials to use in their schools. The program also included participatory evaluations on energy use in schools and an energy-efficiency action plan was developed in conjunction with the schools to be implemented in coming years.

At the higher education level, and as part of a national comprehensive energy management program financed by *UPME, COLCIENCIAS, Endesa, EPM and E2 Energía Eficiente*, and implemented by the *Universidad Nacional de Colombia* (with the support of 15 universities within five regions across the country), a series of certification programs and specializations were designed around comprehensive energy management.

3. Results of the actions and potential for replication in the region

The proposed methodology has been implemented repeatedly at Rochester School (which is LEED Silver certified), producing significant outcomes in this knowledge area, used by teachers and students to ensure that the school community uses energy properly, including participants' households by extension.

The universities that participated in the certificate programs and specializations on comprehensive energy management benefited from the momentum created by these programs. This demonstrates that the program served to create an installed capacity in academia, which in turn, diversifies and enhances the supply of professionals in the field.

The methodological guide for schools can be tailored to each country and replicated to train teachers and students on energy efficiency.

4. Need to address the issue within ECPA

The methodological guide is currently being shared with Colombia's Ministry of Education and its subordinate departments for making it available to the general public and teachers, especially. The Government of Colombia would also like to share the methodological guide with ECPA participating countries to receive feedback and channel financial resources its edition and regional distribution.

COSTA RICA

Increasing the share of renewable energies in the energy mix

1. Brief description of the sustainable-energy priority

In 2015, the national energy mix was comprised by petroleum derivatives (65.7 percent), electricity (22.6 percent), biomass (9.9 percent), and coal/coke (1.8 percent). Of the total energy generated from petroleum derivatives, 82 percent is consumed in the transportation sector, 9.6 percent in the industrial sector, 2.6 percent by households, and 5.8 percent in other areas, including 1.0 percent in thermal electricity generation. Thus, the greatest challenge for Costa Rica to realize a low-emission economy resides in the transportation sector and its energy consumption. One of the priorities for the country is to transform the sector, and electric transportation has an important role to play in that process. Consequently, Costa Rica must be able to continue meeting its current electricity demand, plus the additional demand that the transportation sector would require, using renewable energies. Said shift will have the biggest impact in terms of lowering emissions, as it would replace the fossil fuels currently being used to power vehicles with electricity generated from renewable sources.

The aim is not only to continue having a renewable energy mix, but to further its diversification by including a larger proportion of different renewable energies. Great care must be taken during the inclusion process to avoid adversely affecting the energy security or energy quality that the country has devotedly worked for many years to achieve. Hence, there is a need to move forward in the areas of energy storage and smart grids, which will be necessary for diversifying the energy mix and for using electric transportation. In addition, distributed generation must also be examined in a way that takes into account the effects of electric vehicle charging in the network.

2. Measures adopted by the Government to address this priority

The VII National Energy Plan sets out the strategic priorities for the energy sector and adopts low-emission sustainable development as its core instruction. It addresses the above-mentioned challenges and sets specific goals to that end. Some of these concrete measures are:

- Regulatory framework on distributed generation
- Design of a national electric transportation strategy
- Infrastructure development for electric vehicle charging stations
- Identification of measures for designing a roadmap for introducing electric vehicles
- Promotion of electric modes of public transportation
- Design of a national strategy for smart grids
- Analyze the effectiveness of establishing incentives for new technologies
- Promote a passenger rapid transport (PRT) system using electrically powered trains

3. Results of these measures and their potential for replication in the region

- Experience with implementing distributed generation systems in the country
- Granting tax incentives to electric vehicle buyers
- Preliminary stage of drafting rules for standardizing charging centers installed by distribution companies
- Installation of pilot charging centers for the current fleet, estimated at 214 electric vehicles and 119 rechargeable hybrids.

4. Specific needs that the could be addressed through ECPA

- Share experiences in electric vehicle promotion and inclusion
- Energy planning tools for incorporating electric transportation
- Market studies on electric vehicle penetration
- Technical and economic studies for different storage options
- Data collection on distributed energy generators
- Design a fee collection and communication platform for selling electrical energy to electric vehicles
- Smart grid applications in electric vehicle charging systems

DOMINICA (COMMONWEALTH OF)

The Sustainable Energy Priorities for Dominica as outlined in the National Energy Policy (NEP) are to combat energy costs, improve access to a reliable, safe and secure energy supply, utilize local energy sources, contribute to reducing the effects of climate change, as well as providing the opportunity for Dominica to generate foreign revenue through energy exports to neighbouring islands, while simultaneously contributing to social development and environmental sustainability.

In support of these priorities, the Government of Dominica has embarked on an ambitious programme to develop the geothermal energy resources of the country, which is an essential pillar to the country's Growth and Social Protection Strategy (GSPS).

In this regard, and over the last two decades, Government has systematically investigated the viability of exploiting the geothermal energy resources with the help of major international development partners.

Investigations over the past 12 - 15 years with strong support from the Organization of Americas States (OAS), the European Union (EU), the Government of France, and regional organizations such as the CARICOM Secretariat and the Organisation of Eastern Caribbean States (OECS) Commission, have confirmed the existence of a high quality and substantial quantity geothermal resource in Dominica suitable for electricity production, with the potential to produce electricity for supply to both the domestic and export markets at an affordable price. Additionally, exploiting the geothermal resource will engender greater energy security for Dominica, and beyond, while contributing to regional harmony.

Government is now pursuing the implementation of a geothermal energy development project that will see the installation and commissioning of a 7 MW power plant for domestic supply by the end of 2019, as the first phase of a much large export oriented investment. This geothermal power plant will replace at least 75 percent of the electricity now generated with the use of diesel fuel.

The Government of Dominica has committed to provide up to 40 percent of the total project cost from local resources, and has received, and is actively seeking grants and concessionary funding from international development partners – Government of New Zealand, World Bank, UK/DFID, Green Climate Fund, SIDS, and IRENA.

In October 2016, Parliament of Dominica approved the Geothermal Resources Development Act, No. 12 of 2016. The Act seeks to provide for the regulation of geothermal resources with the objective of ensuring its sustainable development and its allocation for uses that are most economically beneficial to Dominica.

The Geothermal Resources Development Act was passed in Parliament on October 24, 2016 (this year). Said Act seeks to provide for the regulation of geothermal resources with the objective of ensuring the sustainable development and use of the resource, and ensuring its allocation to the uses that are most economically beneficial to Dominica.

With respect to institutional strengthening and capacity building, the Government is seeking assistance to develop a framework to provide guidance and leadership for the right and proper use of the geothermal resource, and for management, regulating, monitoring and evaluation of the resource.

It is Government's intention to divest a significant proportion of the ownership of the geothermal power plant to Dominican nationals and corporations once the project is deemed to be operating satisfactorily**.**

DOMINICAN REPUBLIC

2015-2017 Renewable Energy Program

Strategic Framework of the Dominican Republic

- **National Development Strategy 2030.** The Dominican Republic's National Development Strategy (NDS) through 2030 establishes the basis of the country's energy development. Two of its main pillars – strategic focus No. 3 and strategic focus No. 4 – explicitly include promoting renewable sources of energy in the country.

- **Multi-Year National Public Sector Plan 2013-2016.** To help deliver on the expected NDS 2030 goals, key targets are set around renewable energy, notably the expansion of generation based on renewable energy sources to diversify the power generation plant, with an emphasis on exploitation of renewable and environmentally-friendly sources. The goal set was 20.6 percent of the electricity supply to be from renewable sources by 2016.

- **Presidential Goals.** An important goal set for the 2016-2020 period is to increase renewable energy production to 620 MW of clean energy, using facilities available under the current incentives law. To accomplish this, the aim is to install at least 12 renewable energy projects by August 2020.

Objective: To encourage the development of renewable sources of energy in the Dominican Republic, in pursuit of facilitating the transition to a cleaner, safer, and sustainable energy mix; increasing access to modern energy services; cutting greenhouse gas emissions; reducing dependence on hydrocarbons; and moving the country towards sustainable energy development.

Components: Execute programs, actions, and projects to promote energy generation from renewable sources, including the preparation of studies and the gathering and reviewing of current laws and regulations governing the renewable energy sector. Initiatives are being implemented to determine, and subsequently exploit, the country's renewable resource potential, which is: (i) Geo-Referenced Hydraulic Leap Data Base; (ii) Evaluation of Geothermal Potential; (iii) Evaluation of Biomass Potential and Availability; (iv) Wind-Solar Exploration Campaign and Measuring Towers Grid Configuration; (v) Study to Review Distributed Generation and Net Metering Regulations; (vi) Liquid biofuels from energy crops Program, (vii) others.

Findings: Renewable energy accounted for 20 percent of the country's electricity supply as of June 2016, reflecting an increase of 8.5 percent from October 2014. By the end of 2016, that proportion of renewable energy in the electricity mix increased to 21 percent, including recent projects as a 50 MW wind farm, a 30 MW solar power project, and a 30 MW biomass project.

Cooperation Proposal and Needs of the Dominican Republic under the Energy and Climate Partnership of the Americas (ECPA):

The Dominican Republic has identified areas of interest, where ECPA assistance and collaboration can be a key aspect for advancing the goals and objectives established for the renewable energy sector, including:

a. Support and technical advice for wind-solar exploration studies, using hourly measurements
b. Collaboration to conduct a study of the plan to expand electricity generation, transmission, and distribution in the country
c. Advice and cooperation for a large-scale program to produce briquettes and fuel-efficient stoves in the country's border region
d. Education and training opportunities, including workshops, courses, and internship programs on issues related to renewable energy and government best practices.

The Dominican Republic is willing to share with other ECPA member countries the knowledge and experience it has gained implementing some of its renewable energy promotion programs and projects, through the following mechanisms:

1. **Information-Sharing:** Share information about steps the Government has taken to promote renewables in the country, which would also be of interest to ECPA members.

2. **Program and Project Proposals:** To share the country's experiences, findings, background information, and components, as well as technical and administrative provisions of programs to promote renewable energies undertaken by the country, including: (i) Distributed generation program, especially as it relates to net metering as an incentive for renewable sources of energy; (ii) Use of biomass, such as boilers to generate steam and electricity for industries; (iii) Biodigester and gasifier applications; (iv) Biomass-natural gas hybridization and cogeneration projects; (v) others, including arranging exchange meetings with key industry players and scheduling visits to renewable energy generation plants and self-producing companies that feed electric power to the national grid.

ECUADOR

Priority 1: Regional Energy Integration

Initiative: Strengthening of international electricity interconnections

The Ministry of Electricity and Renewable Energy of Ecuador is strongly committed with regional energy integration and is intending to foster and consolidate electricity exchanges in the region. This is in order to enjoy a stronger, secure, and stable electricity system, supported by energy policies conducive to the sustainability of the sector.

In this way, we expect to developing mechanisms for coordinated planning between and among countries, developing regulatory frameworks for promoting integration of electricity markets and establishing funding mechanisms for implementing interconnection projects.

Priority 2: Energy Efficiency

Initiative: Implementation of the National Energy Efficiency Plan

Article 413 of the Constitution of Ecuador provides that the State shall promote energy efficiency, the development and use of environmentally clean and sound practices and technologies, and diversified forms of renewed energy. That provision is reflected in objective 7 of the National Plan for Good Living (*Plan Nacional del Buen Vivir* – PNBV 2013-2017), which highlights the need to implement technologies, infrastructure, and tariff systems that stimulate energy efficiency across the economy's different sectors.

In addition, the Organic Law on Electrical Utility Services (*Ley Orgánica del Servicio Público de la Energía Eléctrica*) provides that the Ministry of Electricity and Renewable Energy (MEER), as the electricity sector's governing and planning body, has the authority and responsibility-among other things-to develop the National Energy Efficiency Plan (*Plan Nacional de Eficiencia Energética* – PLANEE).

Actions Taken

The National Energy Efficiency Plan (PLANEE) has been developed and will be published in April 2017. The Plan is a public policy instrument aligned with the PNBV 2013-2017 and the Sustainable Development Goals that sets out energy efficiency targets in the areas of energy supply and demand for different sectors, in addition to the measures, projects, and programs needed to meet those targets.

Results obtained and their potential for replication in the region

A variety of initiatives to promote energy efficiency have been underway in Ecuador since 2007. They include substituting inefficient equipment with efficient equipment, most notably the replacement of 15 million incandescent light bulbs with energy-saving bulbs; changing out 91,000 inefficient refrigerators for efficient units; and swapping 65,000 public lighting units with efficient equipment. These measures have cut peak power demand by 362 MW.

Another line of action implemented has been technical capacity building for professionals in the industrial sector, which has led to the installation of 37 energy management systems (EMSs) and the performance of 25 detailed system optimization assessments, resulting in a 10% cut in energy consumption in the industries that took part in the initiative. In quantifiable terms, that meant a consumption saving of 13 GWh and 2 million gallons of diesel and other fuels, which, environmentally speaking, will have prevented the emission of 31,000 tons of carbon dioxide over the project's lifetime.

The country has also been implementing the Efficient Cooking Program (*Programa de Cocción Eficiente* – PEC) nationwide. Its goal is for electricity to replace LPG as the main energy source for cooking food and heating water. The program reports that so far 610,000 households have switched to electrical induction stoves, benefiting around 2.3 million Ecuadorians. That represents an annual reduction of 79,000 tons in the use of LPG and, with it, 235,000 tons fewer in carbon dioxide emissions from its combustion.

Another area of action has been the enactment of standards and technical regulations as a starting point for introducing guidelines in all consumption sectors. Thus, 19 Technical Regulations on Energy Efficiency have been published with the aim of improving energy performance in the main end-uses of energy.

The knowledge, experience, and lessons acquired from the execution of these programs have been shared with various countries in order to enable them to replicate the results, in view of their clearly successful outcomes.

Specific need that could be addressed through ECPA

It is essential to disseminate results and good practices in the area of energy efficiency at all levels of training, in order to create a culture of change focused on optimal use of energy resources.

Along with the vision that all countries apply similar methodologies in assessing results and impacts, it is necessary to establish uniform indicators for program monitoring and follow-up.

EL SALVADOR

Challenges and priorities for the development and promotion of sustainable energy

Since 2009, El Salvador has undergone a transformation process of its energy matrix, through the formulation of an Energy Policy that will dictate energy planning decisions in the country. The main objectives of this Energy Policy are in line with the Sustainable Development Objectives, particularly with Objectives 6 and 7, including the following:

- Diversification of the energy matrix and promotion of renewable sources
- Advance in the instructional strengthening of the energy sector and user protection
- Promotion of energy efficiency and saving culture
- Expansion of preferential social tariffs and coverage
- Innovation and technological development
- Regional energy integration.

Based on these guidelines, pertinent steps have been initiated for the development of non-conventional renewable generation projects, which include the generation of technologies that foster the use of sugarcane biomass, biogas from animal and vegetable waste, and solar photovoltaic and wind power. This promotion has been accomplished through energy tenders and the application of tax incentives to invest in new generation projects that use renewable generation, which has resulted in the readjustment of the norms and regulations that oversee the electric sector.

The development of these processes has allowed the awarding of 276 MW of total capacity to be installed, expecting for the last generation units to start operating in 2020. However, it is necessary to carry out different types of steps to introduce a greater share of renewable generation in the country's energy matrix. Moreover, and in spite of programs that have been developed to promote and disseminate the energy efficiency culture in the country, much remains to be done. Finally, small initiatives are being developed to increase the electricity service coverage to reach those families that do not yet have access to the service, which still needs to be completed to guarantee full coverage. Based on the above, the following challenges are defined as national development and implementation priorities:

- Acquire experience and develop regulation on the forecast of energy production from non-conventional renewable sources, to help load-generation balance management in light of the incorporation of these technologies at a large scale
- Develop regulations aimed at micro-generation ERNC (GDR) management, and the gathering of statistical information
- Acquire experience and develop energy storage systems regulations
- Expand the culture of efficient use of available energy resources
- Quantify and develop a coverage plan devoted to provide electric service to those families that do not have access to this basic service yet.

UNITED STATES OF AMERICA

ECPA Pillar 4: Energy Infrastructure

Description:

Energy infrastructure is vital to national security, energy security, and economic prosperity. While many countries throughout the Americas are seeking efficient, effective energy diversification options, these energy systems are susceptible to disruption from a variety of threats, ranging from aging grid infrastructure, cyber-attacks, to severe weather. As wind and solar capacity grow, their variability presents challenges for grid management. Distributed generation offers opportunities to increase transmission efficiency and resiliency, offering strategies to alleviate the pressure to expand transmission capacity. The challenges and opportunities of energy infrastructure modernization cannot be addressed by technology alone; they also require fresh approaches to policies, business models, and governance, including safeguards to mitigate social conflict. As energy systems evolve to meet an expanded set of roles and objectives, there is a growing need to efficiently adapt, upgrade, reinforce, and modernize energy infrastructure.

U.S. Actions:

The United States has seen rapid innovation in clean energy, energy efficiency, and other power sector technologies and policies over the last decade. This has led to a revolutionary change in our national energy system, thousands of new jobs created, and greater energy security. A national assessment of energy infrastructure and targeted investment in energy efficiency and grid modernization has lessened the impact of disruptions to the U.S. energy system. The Quadrennial Energy Review noted that upgrades to smart grids have enabled the electricity sector to restore power expeditiously and cost-effectively when major hurricanes have hit the United States. U.S. natural gas market participants have also initiated efforts to improve pipeline infrastructure, and integrate natural gas and renewable technologies to improve electrical reliability and grid security, leading to increased deployment of natural gas.

Outcomes and Potential for Replication:

U.S. efforts to reinforce its energy infrastructure have enhanced energy security, making the national grid more reliable, resilient, and flexible. The following could be replicated to strengthen energy infrastructure in the Americas:

- The United States developed *The Islands Energy Transitions Playbook*, which can be shared, discussed, and utilized.
- Our participation in the Asia-Pacific Economic Cooperation Forum (APEC) and Clean Energy Ministerial (CEM), OAS, IRENA, IEA, and ECPA has allowed us to share U.S. best practices for implementation of renewable energy technologies and energy efficiency.

ECPA Pillar 6: Regional Energy Integration

Description:

Connecting markets across borders and supporting regional efforts to work collaboratively and effectively allocate resources mobilizes investment and enhances economic competitiveness. Reliable, affordable electricity plays a critical role in a country's national security, political stability, and its economic, social, and environmental development. Electricity integration improves energy security and stability; allows for greater energy supply diversification; captures economies of scale; enables regional energy trade; enhances competitiveness by creating competitive markets; and promotes new investments.

U.S. Actions:

This year marks the half-way point of the ECPA initiative *Connecting the Americas 2022 (Connect 2022)*, a decade-long Summit of the Americas mandate to expand electrical interconnections, enhance regional power trade, and scale up low-carbon power generation throughout the hemisphere. U.S. activities under *Connect 2022* focused primarily on Central America and Mexico as well as Colombia, Chile, and Peru. In Caribbean energy markets, the United States supports CARICOM's efforts under the Caribbean Sustainable Energy Roadmap and Strategy (C-SERMS) to create a more systematic approach to energy policy implementation, project planning, and coordinating energy assistance.

Outcomes and Potential for Replication:

The United States' ongoing support to Central America will help strengthen the regional power market and accelerate efforts to double the capacity of the Central American regional transmission line (SIEPAC) and integrate electrically with Mexico. These efforts will further build confidence in a regional market that has achieved cost reductions, economic growth, increased investment, and broader regional integration. As Andean governments consider their own regional power market or bilateral interconnections, experiences can be shared that highlight the economic and commercial benefits of integration and the need for political support in strengthening markets to expand trade. The National Institute of Standards and Technology and the OAS in collaboration with National Metrology Institutes in the Americas could advance measurement standards for energy efficiency in Central America and the Caribbean, and promote sustainable energy technologies for the Hemisphere.

GRENADA

Grenada is overwhelmingly dependent on imported petroleum products to satisfy its growing energy demand. In 2014 Grenada's GDP was almost 1 billion USD (957,142,857.14), and the cost of imported Petroleum products was approximately USD67M.

A high dependence on imported fuels underpins the country's lack of energy security and renders the economy hostage to price volatility and other issues of the international oil market. This reliance is also a source of balance of payment challenges, and the associated foreign currency demand, which in turn contributes to a drain on the country's foreign exchange reserves.

On -going activities which aim to reduce this dependency and ultimately lower and stabilize electricity costs, seeks to open up the market to domestic and foreign or international investments, particularly in the areas of alternative and renewable energies.

As of August 1st, 2016 a revised Electricity Supply Act and a new Public Utilities Regulatory Commission Act (PURCA 2016) have been put into force. The two acts repeal and replace the 1994 legislation which established an integrated monopoly with limited regulatory supervision for the sole electric utility Grenada Electricity Services Ltd. (GRENLEC) until 2073. Those acts no longer meet the requirements of an ever changing global electricity sector. Plummeting costs for renewable energy conversion technologies demanded a new legislation agenda, providing a sound framework to create a fair and sustainable electricity sector.

Considered benefits of new framework include:

- Establishes a legal framework that adapts international best practice for small island states by introducing competition for the generation market.

Against the backdrop of the goal to reduce dependency, the Government of Grenada has embarked on a 10 year process to develop its geothermal resource with the view to producing electricity.

To date the following have been achieved:

i. Undertaking of extensive geochemical, geophysical and geological surveys to provide estimates of the geothermal resource location and size
ii. Preparation of a Geothermal Resources Development Roadmap (GRDR) outlining key activities, costs and resources required achieving the commissioning of a 15MW geothermal power plant development by 2022/3
iii. Two Donor forums to report findings from activities completed and garner further support

iv. Outreach to donor community for additional resources to undertake a slim-hole drilling campaign
v. Shortlisting of three locations suitable for exploration (slim hole) drilling.
vi. Preliminary assessment of the existing infrastructural capacity of the island to facilitate an exploration drilling campaign and deliver equipment to the potential sites
vii. Preliminary analysis of Grenada's institutional, legislative and regulatory frameworks for assessing the Environmental and Social Impacts of the development.
viii. Review of Draft Geothermal Bill
ix. Securing of a grant of USD231,630 from the Caribbean Development Bank (CDB) for the establishment of a Geothermal Project Management Unit within the Energy Division
x. The articulation of Draft terms of reference for the conduct of environmental and social impact assessments prior to slim-hole drilling.

Other key priorities include raising of awareness on sustainable energy issues relative to the public, business community, building capacity in the banking sector in order to enable it to provide appropriate products for the deployment of renewable energies and energy efficient technologies; sustainable energy transportation for the public sector; articulation of equipment and technology standards; and facilitating sustainable energy at economies of scale for community agro processing centres.

GUATEMALA

Support for strengthening energy planning: Implementing metrology in the development of actions to mitigate greenhouse gas emissions in the energy sector

ECPA Pillar No. 1: Energy Efficiency

Description: To achieve the emissions reduction objectives stated in COP 21 and COP 22, the United Nations Framework Convention on Climate Change (UNFCCC) established that each country will determine its own Intended Nationally Determined Contributions in a clear, transparent fashion, but mainly reflecting the country´s opportunities in terms of mitigation and adaptation. Based on the Common but differentiated responsibilities (CBDR) principle, and its current capabilities, Guatemala has formulated as a conditioned proposal, the reduction of up to 22.6 percent of its total greenhouse gas reduction (GHG) yearly, based on its 2005 emissions, projected to 2030.

A 22.6 percent would mean that carbon dioxide equivalent emissions would decrease from 53.85 million to 41.66 million metric tons of CO2 equivalent by 2030. The technical and financial support of the international community, and the public and private sectors will be required to achieve this ambitious goal. In compliance with international agreements and the Climate Change Act[1] the Ministry of Energy and Mines (MEM) is in the process of formulating a National Energy Plan for the production and consumption based on the adoption of renewable natural resources and the elaboration of energy efficiency policies through effective indicators of GHG. Therefore, it is necessary to quantify GHG emissions to contribute more effectively to the development of actions, guidelines and mitigation strategies contemplated in the National Energy Plan and other instruments with a similar scope, such as the National Plan for Energy Efficiency, which emanates as an output of the 2013-2027 Country Energy Policy.

Results of country actions and their potential for replication in the Region: In order to achieve GHG reduction targets and to improve adaptation capacities to climate change, the country has made different efforts: In September 2009, the National Policy on Climate Change was approved. Subsequently, the Climate Change Framework Law and the Mitigation of Greenhouse Gases Effect Decree 7-2013, hereinafter referred to as the Climate Change Law, was approved in September 2013. The Climate Change Law commands in its Article 11 the Ministry of Environment and Natural Resources (MARN) and the Presidential Secretariat for Planning and Programming (SEEGPLAN) to develop a National Climate Change Plan and a National Energy Plan, while the compensation of emissions, the reduction of emissions by change of land use and the reduction of emissions of public and private transport, are contained in Articles 18 to 21.

[1] Framework Law to regulate the reduction of vulnerability, obligatory adaptation to the effects of climate change and the management of greenhouse effect gases. Decree 7-2013, Congress of the Republic of Guatemala.

Moreover, MEM has begun the planning process for developing a Low Emission Development Strategy since 2015. The strategy seeks to identify policies and actions in different sectors of the economy, including the energy sector, according to the level of impact of emissions reduction and the costs of depletion of each sector. These efforts are being developed by Guatemala based on an inter-institutional public coordination platform and the international community.

The advances made in the formulation of the above-mentioned tools have reached the level of qualitative planning and quantitatively methods are not being used to assure correct, compare, trace and reproduce measurements of the actions or planned goals.

Effective mitigation of GHG emission s due to global warming requires precise and comparable measures to: Determine emission levels and baselines; control the levels of EGF in sources and sinks; assess the impact of mitigation strategies.

Countries like Guatemala also need to implement parallel monitoring actions of fixed sources and standards to carry them out; remote monitoring and standards; accreditation of laboratories and the international comparability of measurements of GHG emissions. MEM already has a laboratory that will require the appropriate equipment to support the application of metrology in energy planning and mitigation actions of GHG.

Specific Needs that can be addressed through ECPA and should be Discussed at the Ministerial Meeting: Accompaniment and support from ECPA-OAS to continue its raising awareness efforts so that the different available cooperation sources established around the international climate change agenda can support countries such as Guatemala by providing non-reimbursable technical and financial assistance for the strengthening of installed capacities (equipment, capacity building, etc.) in order to advance from a qualitative planning stage of mitigation and adaptation actions, toward a quantifiable data program that can ensure correct, comparable, traceable and replicable measurements of the energy planning in place.

GUYANA

Guyana's energy development is focused on the country's sustainable development approach to realising a Green State, in keeping with its Nationally Determined Contributions (NDCs) to the Paris Agreement on Climate Change, as well as the Sustainable Development Goals (SDGs). The Government is working towards ensuring a modernised energy sector, with an increased mix of clean and renewable resources.

The priority actions, as articulated in the draft Green State Development Strategy, are as follows:

1. Achieve a transition to close to 100 percent renewable energy in the power sector
2. Achieve affordable, reliable and clean energy services for all
3. Increase energy efficiency
4. Ensure security and quality of energy for business growth.

Guyana is currently heavily dependent on imports of fossil fuels for its energy needs, despite possessing an abundance of natural resources with significant options for the development of renewable energy sources. Guyana's energy development plan to harness resources such as hydropower, solar, wind, and biomass encompasses various scales of projects, including micro and pico hydroelectric plants for hinterland electrification, medium-sized renewable energy projects for the national grid, and larger scale projects for the export of electricity.

As a catalyst to facilitate a shift to renewable energy, the Government of Guyana has made any machinery and equipment for obtaining, generating and utilizing energy from renewable energy sources fully exempt from import duties and value-added tax as well as a one-off tax holiday of two years for corporation tax to importers of items for wind and solar energy investments.

The Government is also acting on the charge given by his Excellency, President David Granger, for the public sector to lead the way in transitioning towards greater renewable energy use with a focus on government buildings over the next four (4) years. Consequently, in 2017, the Government is implementing a renewable energy programme for the installation of solar PV systems on the rooftops of 64 government buildings in addition to a 400 kW solar farm in Mabaruma.

Moreover, in order to support the transition from the use of imported fossil fuels towards indigenous and renewable energy sources, the Government is currently in the process of completing an updated National Energy Policy and considering suitable supporting institutional, legal and investment structures. The overall goals are to provide a stable, reliable, and economic supply of energy; reduce our dependency on imported fuels; promote, where possible, the increased utilisation of domestic resources; and ensure that energy is used in an

environmentally sound and sustainable manner. In addition, very shortly, an Energy Transition Roadmap for Guyana would be finalized.

Finally, the main utility has established a National Grid Code for the Integration of Distributed Generation which will provide for a commercial and technical framework to accept electricity from renewable energy sources unto its distribution network and streamline feed-in mechanisms.

In keeping with the UN Sustainable Energy for All Initiative, it is Government's intention to attain universal access and equitable geographical distribution of green energy services at the least cost to consumers. Therefore, in the coming years, plans will be advanced for the implementation of solar farms in the Hinterland Region; particularly in the recently designated towns of Bartica, Lethem, Mahdia, Mabaruma and the principal community of Port Kaituma. Emphasis will also be placed on delivering electricity to remote riverine villages, while advancing socio-economic benefits through small business development and improved operations at health facilities and educational institutions.

The location of Hinterland communities and the boundaries of the national grid make improving energy access in these remote areas challenging. To promote socio-economic development and poverty alleviation, the Unserved Areas Electrification Programme (2004-2010) and the Hinterland Electrification Programme (2012-2015) were implemented. Under these programmes, electricity was extended to unserved areas where extension of existing distribution networks was deemed to be economically feasible and solar photovoltaic systems were installed in over 18,000 households without grid access.

Regarding energy efficiency, some endeavours that have been carried out include LED solar-powered street lights, distribution of energy efficient cook stoves, change-outs of inefficient lighting for street lamps, schools and other government buildings, replacement of defective photocells, energy assessments of public buildings to identify energy saving opportunities as well as on-going public education and awareness programmes.

Additionally, there have been fiscal incentives to motivate energy efficient behaviour by promoting the use of more efficient, hybrid and electric vehicles, compact fluorescent lamps and LED lamps. In 2017, budgetary allocations have been made for the implementation of EE measures entailed 100 percent change-outs of inefficient lights with LED lamps as well as the installation of occupancy sensors in government buildings and energy efficient outdoor lights.

In the future, Government plans to conduct additional energy audits, implement technology and regulations for energy efficient buildings, encourage energy-conscious procurement within the public sector, research and develop minimum energy performance standards (MEPs) and labelling schemes, and promote Energy Management Standards and energy efficient street lighting.

JAMAICA

The Government of Jamaica (GOJ) is committed to securing a clean energy future for its citizens through, inter alia, developing a competitive energy environment, diversifying energy sources and improving energy efficiency nationwide. In recognizing that increasing the country's dependence on renewable energy sources (wind, solar and small hydro) whilst decreasing dependence on fossil fuels, are integral components of energy security; the GOJ has revised its renewable energy target. The country now aims to have 30% of electricity being generated from renewables by 2030 and with 10.5% as of 2016; the country is set to surpass the target. To date, the total electricity generation from renewable energy, including hydropower, stand at approximately 187MW, with up to 37 MW more to come from the Eight Rivers solar project in 2018 and another 26MW from projected investments in hydropower.

The objective of transforming the energy efficiency of the economy is an energy priority for the GOJ and two initiatives that serve to meet this objective are the Energy Efficiency and Conservation Programme (EECP) and the Energy Security Efficiency and Enhancement Project (ESEEP); both of which were launched in 2011. The EECP was designed to reduce energy consumption in the public sector by retrofitting Government establishments with energy efficient equipment (cool roof, solar control film and air-conditioning). Since 2014, 800 persons from 10 GOJ agencies were trained through seminars and workshops on energy conservation and efficiency, while the reduction in energy consumption resulted in savings of 3,625,509 kWh equating to J$131,544,491.52.

The ESEEP was designed to increase energy efficiency and security through the implementation of the legislative plans and actions associated with the National Energy Policy (e.g. feasibility studies, software and testing equipment). The objective of the project was to improve the institutional capabilities of the GOJ in hydropower investment promotion, project evaluation and development. Of the 42 major components of the ESEEP, 15 contracts have been completed and 8 are in progress; extension granted by the World Bank for the completion of the remaining components by October 2017. The major project activities included the completion of hydropower pre-feasibility and feasibility studies for six rivers which identified 26MW of generating capacity, as well as the procurement of Test Chambers to determine energy efficiency of appliances.

A new programme will be implemented in 2017 – Energy Management and Efficiency Programme (EMEP), which will consolidate, expand on and increase the achievements made so far under the EECP and ESEEP. The objective of this expanded programme is to promote energy efficiency in GOJ facilities and fuel conservation in road transportation.

MEXICO

Program of Energy Efficiency in Public Administration for Mexico 2015-2016

Mexican Government Strategies:

- **National Development Plan 2013-2018.** One of its strategies is to promote the efficient use of energy, as well as the use of renewable sources, through the adoption of new technologies and the implementation of best practices
- **National Energy Strategy 2013-2027.** It states that in order to promote the efficient use of energy in all sectors, the National Commission for the Efficient Use of Energy (CONUEE) will be responsible for developing an Energy Efficiency Program for the Federal Public Administration (PFA).

Objective: To establish a process of continuous improvement to increase energy efficiency in properties, fleets and industrial facilities of the PFA, through the implementation of best practices and technological innovation, as well as the use of operating, control and monitoring tools, that can contribute to the efficient use of public resources and its sustainability.

Components: In order to carry out the Program´s development and implementation, it is important to: i) perform an integral energy diagnosis, ii) determine involved items, iii) establish energy saving targets, iv) elaborate a work plan, v) define control and monitoring tools, and vi) provide training and technical assistance, among others.

Results: Savings for 20.6 GWh were estimated in 2014, accounting for an average consumption decrease of 4.5 percent, with an approximate economic value of 37 million pesos. Efforts to maintain steady electricity consumption with respect to that in 2015 were made during 2016, and in some cases aimed at a reduction of at least 3 percent.

Proposal of Mexican Cooperation Activities within the Energy and Climate Partnership of the Americas (ECPA) Energy Efficiency Group Framework:

Mexico wants to make available to all ECPA member countries their experience in the design, implementation and operation of the PFA's Efficiency Program in Properties to increase energy efficiency in the region´s public sector. To this end, the following listed short-term activities could be carried out with the support of CONUEE and international organizations[2] which lines of action cover programs of this nature, such as:

[2] OEA, IDB, ECLAC, LAEO, AMEXCID, GIZ, AFD.

1. **Introduction seminars:**

   Background, elements, general administrative arrangements and site visits to buildings that are part of the Efficiency Program in Properties of the Federal Public Administration in Mexico.

2. **Training for the Implementation of an Energy Efficiency Program in Public Buildings:**

   - Internal governance for program execution.
   - Knowledge of technological alternatives for lighting and equipment replacement.
   - Knowledge of energy management systems.

3. **Implementation of Pilot Programs:**

   - Assistance and follow-up in the identification of funding opportunities with international organizations.

NICARAGUA

1. Background

Nicaragua has been implementing rural electrification projects and, from 2007 to February 2017, electricity coverage increased from 54% to 90.5%. There are still remote areas-however-far from the national grid, where power distribution line construction is complicated due to cost and lack of access.

In 2006, Nicaragua faced an energy crisis that meant that power had to be rationed by sector for up to 12 hours a day, with 75% of power generated through the use of oil products, and power prices reflecting international oil price fluctuations.

Since 2006, after overcoming the energy crisis through the installation of oil-ran thermoelectric plants, the Government of Nicaragua proposed to change the energy matrix, and as a result of the installation of power plants running on renewable energy sources, 53% of power is now is currently generated through the use of renewable energy sources (wind, biomass, geothermic, solar, and hydroelectric).

2. Current situation

Electricity coverage in Nicaragua now stands at 90.5%. However, efforts must continue to achieve 100% coverage nationwide, ensuring access to power to populations far from the national power grid owing to their remote location.

Particular attention is being paid to the development in the Nicaraguan system of power generation based on variable renewable sources (wind and solar), envisaging the development of a robust generation and transmission system capable of handling the variations and seasonality of power generation based on renewable energy sources.

3. Proposed debate topics at the ECPA ministerial meeting

Development of new technologies and methods for the development of small remote power distribution grids.

Considering the high renewable energy potential of Nicaragua, Central America, and Latin America in general, developing a regulatory framework would enable a stable, safe, and sustained growth of renewable energy sources at the regional or sub regional level.

PANAMA

1. Description of the Priority Topic

The priority aspect identified in the National Energy Plan 2015-2050: The Future that We Want is to implement a Program for rational and efficient use of energy as the main component of a long-term energy policy of the Republic of Panama. The implementation of this program is the best way to ensure, from a public policy standpoint, the development of sustainable energy.

2. Actions Taken by the Government to Address Priority

In practice, the Program for rational and efficient use of energy includes the following components:

- **Sustainable Construction Guide for Energy Savings in Buildings:** Establishment of construction criteria (design and materials) and urban development of new homes and buildings, friendly with rational and efficient use of energy and water
- **Labeling of High Consumption Appliances:** Establishment minimum values and standards that domestic appliances must comply within the national market
- **High Consumption Appliance Replacement Program:** Establishment of a micro-credit line to finance the acquisition of efficient air conditioners and refrigeration appliances
- **Labeling of Passenger Transport and Cargo vehicles:** Establishment of minimum requirements and standards to be met by imported passenger and cargo vehicles in terms of fuel consumption and pollutant emissions
- **Operation and Development of the Rational and Efficient Use of Energy (UREE Fund by its acronym in Spanish) Fund:** A Fund created by the Law for financing rational and efficient use of energy projects that needs to be implemented still.

3. Results of Actions and Potential for Regional Replication

- It has been possible to publish Resolution 3142 of 2016, which approved the Sustainable Construction Guide for Energy Saving in Buildings as well as other measures for the rational and efficient use of energy for the construction of new buildings in the Republic of Panama.
- 14 consumption indices have been developed for air conditioners and refrigerators
- A project document was prepared to seek funding for a refrigeration and air conditioning replacement program.
- Currently working on the development of import regulations for efficient vehicles.
- Currently working on regulations for the use of the UREE Fund.

4. Specific Need that can be Addressed through ECPA and Should be Discussed at the Ministerial Meeting.

It is proposed that ECPA serves as an instrument to discuss the possibility of establishing regional labeling standards for energy consumption equipment.

PARAGUAY

1. Description of the priority thematic area

To prepare and implement a State energy policy that defines a course toward a sustainable energy matrix (EM). Paraguay continues to grow, is competitive, and is taking decisions for realizing a sustainable EM, using indigenous natural energy resources, inclusive economic growth, and regional integration.

The preparation process was launched in 2014, culminating its first stage with the enforcement of the National Energy Policy through 2040 (PEN-2040), adopted by Presidential Decree No. 6092/2016 (October 2016). The STRATEGIC VISION of PEN-2040 is:

To address the energy needs of all public and productive sectors based on quality, socioenvironmental responsibility, and efficiency energy criteria, being a factor in economic growth, industrial development, and social progress, within a context of regional integration.

This Vision clearly marks the path to be taken to ensure that all short, medium and long-term institutional actions contribute to energy security and predictability, energy matrix sustainability, and the consolidation of *National Energy Autonomy*.

2. Actions taken by the Government in response to the aforesaid priority

PEN-2040 proposes a group of institutional actions with short, medium, and long-term goals and objectives involving actors from both public and private sectors. The goals of these actions include, among others, public sector strengthening and private sector competitiveness through the implementation of public policies; plans, programs, and projects; potential energy studies; and pilot projects. In this context, the National Government has now taken major connection steps with alternative energy sources, described below:

<u>Poverty, Reforestation, Energy and Climate Change (PROEZA by its acronym in Spanish) Project – Reforestation to fight against poverty</u>

The plantation of more than 80,000 hectares in the most vulnerable rural population sectors, involving small producers as part of the National Reforestation Plan, to contribute to the creation of a critical forest mass, anti-poverty efforts, and sustainable bioenergy consumption by poor and extremely poor groups. The complete project has now been submitted to the Green Climate Fund (GCF), with support from the Food and Agriculture Organization (FAO) and the World Bank, for evaluation and execution.

<u>BIOENERGY 1 project – Reforestation Focusing on Bioenergy use by National Agroindustry</u>

The plantation of 160,000 hectares of fast-growing exotic tree species by medium and large scale producers located in high consumption areas of Paraguay's Eastern region. The project objectives include contributing to the National Reforestation Plan, creating a critical forest mass,

ensuring sustainable bioenergy consumption by productive sectors, and generating sustainable local labor. The project is at an initial stage, coordinated by the Vice Ministry of Mines and Energy of the Ministry of Public Works and Communications (VMME-MOPC), with support from the Development Bank of Latin America (CAF), to be presented to the GCF in December 2017, for evaluation and execution

Bioenergy Certification Process
Under implementation.

Diversification of the Social Housing Energy Matrix - Renewable Energy Sources for Sustainable Social Housing (ERViSA) project
An interinstitutional working committee has been created for working tin the execution of pilot projects based on the use of third generation photovoltaic systems (SFV3G) within the National Secretariat of Housing and Habitat (SENAVITAT) social housing. Replications of these projects include the installation of solar water heaters, which along with SFV3G, will provide two-thirds of the energy used in this type of housing. Execution of the first phase is scheduled for late March of this year, and the second phase, to include up to 700 housing units, at the end of the year

Proposed Study of Biogas Production Potential
Itaipu Binacional has proposed the preparation of a biogas production study of with the potential of replicating its execution for electricity generation and vehicle use

Proposed Preparation of a Draft Law on Distributed Generation
The steps taken in the region are now under review

Promotion of the Implementation of Electric Vehicles
Participating in the National Technology and Standardization Institute's (INTN) Market Transformation Initiative (MTI), for preparing the Paraguayan electric vehicles standards.

Promotion of the Use of Flex Fuel, Electric Vehicles, Biofuel, and Distributed Generation
Participation in the Secretariat of Environment (SEAM) project's MTI for building decision-making capabilities regarding global environment (National Capacity Self-Assessment - NCSA)

Creation of a Renewable Energy Potential Information System
Internal proposal

3. Results of the Actions and Potential for Replication in the Region

Institutional action plans and national energy policy plans currently under enforcement;

- PROEZA project submitted to the GCF;
- BIOENERGY 1 project: In the process of project manager selection - preparation of terms of reference for the preparation and submission of a concept paper to the GCF in March or April 2017;

- BIOENERGY CERTIFICATION: Under execution by presidential mandate s/Decree No. 4056, of 2015, by which the Deputy Minister of Mining and Energy, authorized to coordinate bioenergy certification, control, and promotion process;
- ERViSA project: Interinstitutional work committee formed, consisting of SENAVITAT, the National Electricity Administration (ANDE), the Yacretá Binational Entity (EBY), and VMME-MOPC, for the short-term execution of two pilot projects (in two stages) for up to 700 housing units in which SFV3G and solar water heaters will be installed;
- Brazil's Itaipú Binacional and ClBiogas to put together a proposal to the VMME-MOPC to establish a MTI for launching potential biogas production studies and the design of three pilot projects to measure biogas' potential to contribute to EM diversification and to determine the replicability of the pilots to be formulated;
- Draft distributed generation law: Reviewing and analyzing relevant legislation currently in force throughout the region
- Promotion of the implementation of electric vehicles: A MTI of the CTN 61 Standardization Technical Committee was developed for the preparation of Paraguayan standards for electric vehicles and charging stations
- Project for building NCSA capabilities: The Secretariat of the Environment (SEAM) established a MTI in which work is being done under the framework of the above-mentioned project for developing environmental indicators.

4. Specific Need that May be Addressed Through ECPA, for Debate at the Ministerial Meeting

It is proposed that ECPA serves as a nexus with other member countries partaking in the Partnership through which discussions on all of the above mentioned topics could be held. Alternatives, knowledge, and experiences in connection with the implementation of Paraguay's currently under implementation new energy policy, innovative pilot projects, international cooperation, and more appropriate sources of funding for the establishment of work processes that strengthen relevant areas of the public sector and revitalize the private sector to achieve medium and long-term energy diversification matrix objectives, is also important.

PERU

1. Brief description of the sustainable energy thematic priority associated with the seven Pillars of the Energy and Climate Partnership of the Americas (ECPA)

Implementation of energy efficiency measures and a higher percentage of renewable energy sources for complying with the National energy policy 2010-2040, which aims to meet national demand for energy in a reliable, regular, continuous, and efficient fashion, while promoting sustainable development, based on planning, research, and ongoing technological innovation.

2. Actions undertaken by the Government in response to that priority

- Design of financing mechanisms to support, through investment, energy efficiency measures so that they become more affordable and profitable for public and private users.
  Development of a registry of certified energy audit providers, dissemination and promotion of energy efficiency labeling, dissemination of energy efficiency guidelines, mandatory audits in the public sector, and lighting market transformation. Promotion of sustainable construction standards on energy efficient temperature and lighting comfort
- Promotion of investment in electricity generation using renewable energy sources, assessment of the electricity grid with revenue from non-conventional renewable energy resources (RER) and review of the fixed output procedure of the grid enabling it to participate in regulated and free markets, and promotion of distributed generation to encourage self-generation with renewable energy sources and cogeneration
- Use of new national fuel standards, and promotion of combined-cycle thermal power plants to replace single-cycle plants
- Preparation of the National Energy Plan to promote diversification of the matrix and increased generation with RER, development of distributed generation and smart networks in Peru
- Regional agreements for interconnection of the Andean countries
- Development of four energy Nationally Appropriate Mitigation Actions (NAMAs) for the promotion and implementation of mitigation actions in energy efficiency, renewable energy sources, clean transport, and promotion of innovative and sustainable technologies
- Energy audit criteria and measures for energy efficiency in public sector entities.

3. Results of the country's actions and their potential for replication in the region

a. Labeling of energy equipment: Lamps, ballasts for fluorescent lamps, refrigerators, washing machines, dryers, water heaters, air conditioners, electric motors, and industrial boilers. Subsequently, Minimum Energy Performance Standards (MEPS) will be implemented
b. A developed registry of energy efficiency consultants and energy services companies able to provide energy audit and financing services, for measures recommended for the public and private sectors
c. Transformation of the lighting market from inefficient to efficient equipment using LED technology. As a public initiative, it is planned to provide 1 500 000 LEDs for the residential sector, 500 000 energy efficient lightbulbs in public buildings, and 1 500 LED lamps for public lighting.
d. The clean transport NAMA promotes the growth of the clean land transport market utilizing clean electric and hybrid vehicles (cars, taxis, buses, shuttles, trucks), beginning with pilots in Lima and elsewhere (e.g. Arequipa and Cusco), and replicated in other regions.

4. Specific need that may be addressed through ECPA, for debate at the ministerial meeting (Chile 2017)

a. Financing for the promotion of energy efficiency
b. Diversification of the regional energy matrix with financing mechanisms contributing to this end
c. Inclusion of clean vehicles, at the regional level with economic incentives to promote their use, considering the co-benefits, such as health and environment.

SAINT KITTS AND NEVIS

Priority: Transform the Energy Sector through Renewable Energy Resources Such As Geothermal Energy (GE)

The Energy Policy of St. Kitts and Nevis envisions a sustainable energy sector that provides reliable, renewable, and affordable energy for all its citizens. With this goal as the compass and ensuring a robust policy and regulatory framework to enable action, in 2015 the Government of St. Kitts and Nevis (GOSKN) revised its 2011 Energy Policy and amended the Electricity Supply Act. This vision to transform the energy sector will be attained through Renewable Energy (RE), Energy Efficiency (EE) and Energy Conservation.

Minimizing the dependency on fossil fuels is critical and the GOVSKN intends to accelerate the deployment of renewable energy solutions across all sectors, identifying Geothermal Energy (GE) as the primary means, notwithstanding the national efforts that continue in wind, solar, hydro and waste energy. Having 100 % of the Federation's electricity produced from renewable sources is a priority, thereby minimizing losses, improving efficiency and enhancing interconnection between St. Kitts and Nevis.

Renewable Energy and Energy Efficiency Initiatives/Actions to Address Priority

1. Established an Energy Unit to develop a comprehensive and actionable Energy Sector Strategy and enhance capacity in Energy Sector management
2. In Nevis, the geothermal project is already underway and in its Environmental Studies phase to drill the first production well, which is expected to commence in the summer of 2017. To complement this, in September 2015, the GOSKN and the geothermal services company, Teranov, signed a Memorandum of Understanding (MOU) and created a GE roadmap. The MOU granted Teranov permission to carry out geothermal exploration, development and production in St. Kitts, in a public-private partnership (PPP) with the GOSKN
3. Registered interest in joining the 'Sustainable Energy Facility (SEF) for the Eastern Caribbean Programme' to address the financial, technical and institutional barriers that may emerge in developing geothermal energy
4. Operating wind farm in Nevis with a capacity of 2.2 MW that is connected to the grid, and is governed by a Power Purchase Agreement (PPA) between a private developer (WINDWATT) and NEVLEC
5. Provided the policy framework to allow for duty free importation of renewable energy technologies.

Outcomes of Country's Actions

1. In St. Kitts, the surface survey for geothermal is almost completed and negotiations are ongoing for an Exploration, Exploitation, Production, Licensing and Incentivization Agreement. The proposal involves building a 20 MW plant, operationalized by October 2021. In Nevis, a 10 MW geothermal plant will be constructed upon completion of the Well.
2. Solar PVs installed: A 0.5 MW plant through the St. Kitts Electricity Company Ltd (SKELEC); a 0.75 MW plant through the St. Christopher Air and Sea Ports Authority (SCASPA), an

independent power producer (IPP); private sector installment of approximately 0.6 MW; and several residential solar PVs

3. Submissions of proposals for a 5.4 MW wind farm, 10 MW of solar PV and 44 MW of solar PV
4. The GOSKN and SKELEC engage in a Caribbean Development Bank (CDB) funded project to retrofit street lighting with LED lamps, increasing the 1,500 street lights that have already been replaced
5. Energy Audit project of government buildings through the CDB.

Specific needs that may be addressed through ECPA and discussed at the Ministerial meeting

Financing for geothermal development and a Waste to Energy plant; Development of an Energy Sector Strategy and implementation plan; Technical assistance to draft regulations; Establishment of standards and codes; Development of a smart grid roadmap; and Capacity building.

SAINT LUCIA

Saint Lucia is a net importer of fossil-based energy, with the power and transport sectors relying almost exclusively on imported fuels. The Government of Saint Lucia (GOSL), realizing the important role that energy plays in the economic and social landscape of the country, took steps to achieve higher energy security and ultimately energy independence.

Government of Saint Lucia's Objectives/Targets in the Energy Sector

In 2010, the Government of Saint Lucia (GOSL) approved and adopted the National Energy Policy (NEP). Within this policy, GOSL established a target of thirty percent of installed electricity generating capacity being from renewable sources by the year 2020. This target was later increased to 35 percent by the same year. The NEP also established that GOSL should improve energy efficiency within the Public Sector by 20 percent by the year 2020.

GOSL has also established targets for national reduction of Greenhouse Gas (GHG) emissions within its submission of Nationally Determined Contributions (NDC) to the UNFCCC in 2015. Saint Lucia pledged a16 percent reduction in GHG emissions by 2025 and a 23 percent reduction by 2030.

Energy efficiency

Sustainable energy includes both energy efficiency and renewable energy and is critical to national development. Energy efficiency measures are relatively easier to implement, due to their technical ease, relatively lower cost and shorter payback period. The energy and financial saving accrued when amalgamated can have a significant positive impact on the economy. For this reason, energy efficiency has always been a priority for the GOSL. GOSL has implemented a string of energy efficient initiatives, including the promotion of energy awareness and education campaigns on island.

Actions undertaken by the GOSL

- **Building Retrofits**

GOSL has undertaken lighting retrofits of several facilities in recent time including:

1. The National Emergency Management Organisation
2. The General Post Office
3. High Court Building
4. Gabriel Charles Forestry Complex
5. Department of Infrastructure building
6. Greaham Louisy Administrative Building

GOSL intends to continue the retrofits of public facilities in an effort to meet its 20 percent target for energy efficiency.

- **LED Street Lighting**

GOSL funded the retrofit of 48 250W HPS street lights with 120W LED street lights along one section of the Castries- Gros-Islet Highway. The GOSL is currently sourcing financing for the replacement of the remaining 21, 000 street lights with more efficient LED lights.

This is expected to lead to over 5300MWh reduction consumption per year once this retrofit is completed.

- **Green Architecture Promotion Pilot**

GOSL intends to embark upon a Green Architecture Promotion Pilot project. The overall intention of this initiative is to improve energy efficiency in buildings through the promotion of green architecture and providing capacity building to the local construction industry.

- **Transport Energy Efficiency**

GOSL vehicle fleet transition strategy and roadmap

The Economic Commission for Latin America and the Caribbean (ECLAC) provided technical assistance to the GOSL to develop a Fleet Transition Strategy and Roadmap which looks at a sustainable manner in which to transition the current Government fleet of vehicles to a more efficient one using suitable technology. GOSL is currently planning to implement the first stage of this strategy.

Electric vehicles for the Government fleet

GOSL received funding from the Italian Government to procure 3 electric vehicles to add to its current fleet of vehicles. These vehicles will serve to demonstrate the benefits of electric vehicles and how best they can be integrated into the fleet.

Outcomes of your countries actions and potential for replication in the region

1. Reduction in consumption of the building in which lighting retrofits were undertaken
2. Financial savings in buildings in which lighting retrofits were undertaken
3. Financial savings with street-lighting retrofits and increased savings as retrofits are continued
4. Enhancement in human capacity in energy efficient methods through training in LEED certification and public awareness and education campaigns

Specific needs that may be addressed through ECPA

The GOSL has taken many significant steps to ensuring that the path to energy security and energy independence is a clear and compelling one. The many projects aimed at reaching and even surpassing the targets set-out by government are a sign of the continued commitment to not only its goals but those of the global community. The GOSL is presently looking to source funding and possible avenues for collaboration within the region. This would help to ensure that the best practices are being adhered to when it comes to energy efficiency on the island. Further new and innovative methods of energy efficiency can be provided to the GOSL for possible implementation to meet their targets.

SAINT VINCENT AND THE GRENADINES

St. Vincent and the Grenadines (SVG) in keeping with ECPA seven pillars for sustainability has a two prong priority approach. “Renewable Energy” at one hand, must be explored and exploited, while “Energy Efficiency” must be encouraged among the utility, commercial, industrial and residential sectors.

SVG is heavily dependent on imported oil for commercial energy need, particularly in electricity generation. The all-time high electricity rate of USD 0.43/kWh in 2014 was attributed to a 56% fuel surcharge. In response to the high electricity cost and oil dependency, the exploration of indigenous sources of energy became a top priority for the Government. A geothermal project became the preferred option given the limited baseload power alternatives and the already exhausted exploitation of hydro energy.

Geothermal energy development, as stated by Prime Minister Ralph E. Gonsalves, “will become the game changer for economic development in SVG”. The Prime Minister considers the reliance on imported oil for power generation a driver for high and volatile power prices, and has been a huge drain on foreign exchange.

SVG’s has adopted a ‘public private partnership’ (PPP) approach. In entering into the memorandum of understanding (MOU), the government felt it was very important to seek out partner companies with substantial technical, development and operating experience and with credible financial capacity to develop the project. Having found the ideal partners for this venture, a MOU was signed in January 2013 between the Government of Saint Vincent and the Grenadines (SVG) on one hand, and Reykjavik Geothermal (RG) and Emera Caribbean Inc. (ECI) on the other hand. The Geothermal Project is expected to be commissioned by 2019 bearing the success on drilling, which is expected to commence in August 2017. Once the Geothermal Plant is operational, the 10 MW plant will supply substantially all of the country’s baseload power and bring renewable energy sources to approximately seventy three percent of total power generation, well in excess of SVG’s Energy Action Plan target of sixty percent by 2020.

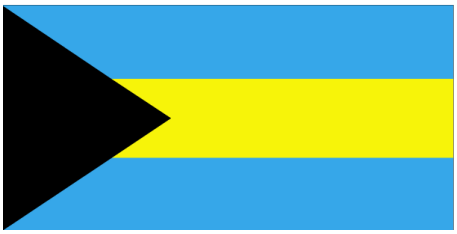
The Government is collaboration with the utility VINLEC, also intends to use government owned lands for utility scale solar PV installation. Already the utility has installed on mainland St. Vincent, just under 500KW and will install a further 1 MW by the end of 2017. Other projects are in the pipeline for the Grenadine islands to deploy a total of 4.85 MW of solar PV and 1.233 MWh of battery storage. This would be the first project of this scale in the region where the project will catalyse a paradigm shift from 100% diesel power generation on the Grenadines islands of Bequia, Canouan, and Union Island to an average 49% low emissions power generation.

Energy Efficiency being the other prong approach is a critical step in the energy transition for SVG. Government Green procurement, Energy Efficiency Standards in building codes and appliances, public awareness campaigns, and duty free concessions on energy efficient

technologies are the approach adopted by the government so as to fulfil this transition. A 100% excise tax and 15% value added tax were placed on incandescent lights, as a disincentive in support of the energy efficiency initiatives.

Energy diversification in the transportation sector, starting with road transportation, will also be key to achieving greater energy independence, and the government has embarked on a macro economic study that investigates the economic impact of an accelerated transition to electric vehicles, particularly in conjunction with an electricity sector based on significant shares of renewable sources of energy. The study also looks at feasible pathways for the government to pursue such a transition.

Established in 2009, the National Energy Policy (NEP) of St. Vincent and the Grenadines provides a plan for the energy sector in the country that addresses sustainability issues.



THE BAHAMAS (COMMONWEALTH OF)

Prior to the big oil price spike of 2008, the Government of The Bahamas had another significant reason to move in the direction of alternative and sustainable energy use.

Such polarizing reason was the realization of the fact that The Bahamas is third on the world list of countries to be affected by global warming, with a calculated loss of 80% of its land area.

Even with the present reduction in the price of fossil fuels, this truth is still a driving force for the use of alternative energy use. It is paramount for The Bahamas to reduce its energy demand, diversify its energy matrix to reduce its energy dependence, and to move toward renewable energy use. To achieve this goal the Ministry of the Environment and Housing has:

i) Initiated the process to establish a unit exclusively dedicated to the sustainable exploitation of natural resources and the deployment of renewable energy technology across The Bahamas.

ii) Conducted two pilot projects for collecting data on the most feasible renewable energy technologies in the environment, and developing the framework and procedures for installation and use, with the assistance of the Inter-American Development Bank and the Global Environment Facility. The first was the installation of solar water heaters, and the second was the installation of photovoltaic systems in residential homes. The projects provided useful evidence that aided the removal of barriers to the use of renewable energy (RE) technologies.

iii) Released The Bahamas National Energy Policy 2013-2033, which indicates the Government's commitment to have a minimum of 30% RE penetration by 2030, and also outlines the mechanisms through which The Bahamas will achieve a modern, diversified and efficient energy sector, that will provide Bahamians with affordable energy supplies and long-term energy security.

iv) Initiated another RE program in 2014 known as the Renewable Energy Self Generation (RESG). This programme will allow for RE sources to supply up to 10% of peak generating capacity in the first instance, and ultimately reduce importation and transport of fossil fuels and their related costs. With over 29 generating plants in approximately 26 island locations, and over 565 MW of installed capacity in the Bahamas, this would be more than 20 plus MW.

v) Amended the Electricity Act for allowing grid connection and incorporating renewables in the country's energy matrix, although a grid stability study is presently needed to fully verify the possible extent RE can be integrated to the grid. A Renewable Energy Power Purchase/Interconnection Agreement (PPA) was also produced, that will provide the

framework for residential and certain commercial customers with RE generation capabilities in particular wind and solar, to connect to the grid.

vi) Signed on as a participant in the Carbon War Room's Ten Island Challenge. Under this programme, the Ministry has advanced a 25 MW of solar utility scale program for several islands within our archipelago.

These initiatives cleared the path for deployment of RE in The Bahamas, but to fully accomplish the National Energy Policy goals and beyond, the priority is to have a grid stability study conducted, along with access to funding for projects (solar systems for the National Stadium, Government Buildings, High Schools and International Airport) through financing for residential RE and PPAs for utility scale RE systems.

TRINIDAD AND TOBAGO

1. Priority Area: Carbon Emissions Reduction

Objective: To contribute to the reduction in carbon emissions, *particularly* in the Power Generation Sector through the use of Renewable Energy (RE), Energy Conservation and Energy Efficiency (EE). This objective is elaborated in the Government of the Republic of Trinidad and Tobago's (GORTT's) following Policy positions:

- The Strategy for Reduction of Carbon Emissions in Trinidad and Tobago – Action Plan for the mitigation of GHG emissions in the Electrical Power Generation, Transport and Industrial sectors.

- The GORTT National Target for RE – i.e. 10 percent renewable power generation by the year 2021.

- GORTT's Policy - which states, that the Government will aim to: "Maximize, where practicable, the use of RE […] through incentives, concessions and enabling Legislation, and make reduction of Trinidad and Tobago's carbon footprint a priority by setting appropriate RE production targets;" and, "Promote EE and RE sources […] as the means to increase *energy security* and reduce our reliance on *fossil fuels* to power our economy."

2. Actions undertaken by Government to address Priority/ Strategies:

In its efforts to create an enabling environment for RE and EE, the GORTT has implemented the following:

- Standards, Regulations, Fiscal Incentives and Policy Documents. These include: The Renewable Energy Policy Framework, and Feed-in-Tariff (FIT) Policy Framework;

- Pilot/Demonstration Projects: aimed at creating greater awareness of RE and EE amongst the General Public; and,

- Technical Assistance Programs: in collaboration with multi-lateral Agencies, such as the Inter-American Development Bank (IDB) and the Organisation American States (OAS**)**.

3. Outcomes of your countries' actions and their potential for replication across the Region / Results

Outcomes:

1. The RE and EE in Schools Education Project: 85 teachers trained. Off-grid solar PV systems and solar distillation units installed in 21 schools

2. The Pilot RE and EE in Community Centers Project: Thirteen (13) Centers outfitted with Solar Induction Lights
3. Light Bulb Exchange Initiative: Energy Savings
4. Energy Audit of the Point Lisas Industrial Estate (PLIE).

Potential for Replication:

There is the potential to implement similar Programs across the Region. These Programs can be improved based upon the lessons learnt from our Programs.

4. Specific needs that may be addressed through ECPA and should be discussed at the Ministerial Meeting/ Components

Assistance is currently being sought in the following areas: Development of RE & EE Road Map; RE Resource Assessments for Wind, Solar, and Waste; Integrated Resource Planning; Capacity Building, and Institutional Strengthening; Legislative Reform (i.e. for RE Grid Integration).

URUGUAY

Toward Low Carbon Transportation

The Uruguayan energy sector has undergone a fundamental transformation in recent years, particularly through the inclusion of nontraditional renewable sources in the national electricity grid and the adoption of energy efficiency measures. As a result, 95 percent of the electricity mix now comes from renewable sources, and 54 percent of the overall primary energy mix is also based on renewables. However, there is still high demand for petroleum and derivatives in other areas of energy consumption, where transport accounts for 70 percent. As for greenhouse gas emissions, transportation is responsible for half of those produced by the energy sector as a whole.

The transportation growth in Uruguay seen in recent years has kept pace with the country's economic expansion. The increase in the number of privately owned vehicles has had a significant impact in urban areas, in terms of rising fuel consumption, congestion, and emissions of pollutants, such as particulate matter and soot.

Achieving the goal of reducing fossil fuel consumption and an attendant impact in terms of reducing emissions of greenhouse gases and other polluting gases, particularly in urban areas, requires meeting at least five objectives: Strongly incentivizing the use of collective transportation, promoting light vehicle labeling, encouraging fuel-efficient driving techniques, discouraging single-occupant private vehicle use, and fostering new modes of transportation and technologies.

At the same time, the freight sector, an industry associated with diesel consumption, has a scope for improvement through buying more efficient vehicles, route and trip planning according to energy consumption, and fuel-efficient driving techniques. In the case of the light freight sector, mainly used in urban areas, electric transportation can find development potential. Its use for long-distance freight could require a regional or international approach.

The chart below details energy-efficiency measures promoted in the transportation sector in Uruguay. In particular, hey include:

- Tax incentives through reductions in import duties, lower excise tax, or tax rebates
- Fuel-efficient driving courses for freight and passenger vehicle drivers
- Vehicle labeling standards
- Piloting of new technologies
- Inclusion of electric vehicles in the taxi fleet of the Department of Montevideo through specific tenders for permits for this new technology combined with a benefits scheme
- Coordinated efforts and creation of public-private synergies.

The main challenges for 2017 include the rollout of the GEF project "Toward a Sustainable and Efficient Urban Transportation System in Uruguay"; the installation by UTE (the state-owned electric company) of the *Ruta Verde* (Green Route), including charging stations for electric vehicles along the 500 km stretch of coast between Colonia and Rocha; and a joint project with the Government of Montevideo's Transportation Management Center to manage public transportation by improving routes and journey times.

Energy Efficiency in the Transportation Sector - Measures Taken by Uruguay

2012

- Changes in the excise tax (IMESI) rate

Cleaner production tax benefits - Investment Promotion Act

2014

- Interagency working group on transportation energy efficiency
- Fuel-efficient driving courses
- Vehicle labeling standards

Pilot tests – electric vehicles

2015

- Zero import tariff for electric passenger vehicles

First tender for electric taxi permits

2016

- First electric bus enters service
- Second tender for electric taxi permits
- Consultancy on potential opportunities

Transportation Management Center – Government of Montevideo

2017

- GEF 6
- Ruta verde

It is worth noting that the approach adopted by the Ministry of Industry, Energy, and Mining in this regard has been to incorporate an energy-efficiency perspective in the country's transportation policies. The administration is banking on the creation of interagency working environments in which the ministries of transport, environment, and economy and finance, as well as departmental governments and state-owned energy enterprises, participate actively. In that context, measures and policies are proposed and analyzed with a view of advancing toward an improved transportation system with lower emissions.

Countries and cities throughout the region share similar challenges and opportunities, being made is far from insignificant. Exchanging experiences, best practices, and lessons learned on the inevitable learning curve that results from the adoption of new technologies, such as light-duty vehicles and electric buses, will allow the region to move steadily forward at a faster pace.

Jointly designing and following up on pilot projects and monitoring technology, will create opportunities for replicating experiences in the region's countries.

A joint design and coordination of standards and regulations will facilitate the development of new technologies in the regional market.