

PARTNERSHIP FOR MARKET READINESS (PMR)
POLICY ANALYSIS WORK PROGRAM:
REPORT OF FY16 ACTIVITIES AND PROPOSAL FOR FY17

PMR Note PA14 2016-2

April 12, 2016

Draft version, for review and endorsement

I. INTRODUCTION

1. In an effort to inform the Partnership Assembly (PA) about the progress and outcomes of the work that has been done under the PMR's Policy Analysis Work Program (PAWP) and present a draft proposal of the FY17 activities for feedback as agreed at the PMR Technical Workshop on Post-2020 Mitigation Scenarios and Carbon Pricing Modelling ([Workshop Report](#)) in Brasilia, the PMR Secretariat prepared this *Note on Policy Analysis Work Program: Report of FY16 Activities and Proposal for FY17* (PMR Note PA14 2016-2). The Note starts with a background of the PAWP (Section II), then describes activities that have been carried out until today – with a particular emphasis on the progress made in FY16 (Section III), and finally outlines the proposed scope of work and future activities for FY17 (Section IV). Going forward, as requested by the PA, the PMR Secretariat will regularly inform the PA about on-going and future activities under this work program.

II. BACKGROUND

2. At PA8 in March 2014, the PMR Secretariat presented an initial “*Proposal on Upstream Policy Work*” ([PMR Note PA8 2014-2](#)), in order to respond to new domestic and international developments and provide support to countries for the analysis and development of policy options for mid- and long-term mitigation objectives. The PA invited the Implementing Country Participants (ICPs) to submit an Expression of Interest (Eoi) for receiving this analytical support.
3. The Policy Analysis Work Program (PAWP) was officially launched at the following meeting (PA9) and the PA, through [Resolution No. PA9/2014-3](#), allocated an envelope of US\$5 million for FY15 to support the following activities: (1) country-level analytical work; (2) common methodology and framework (including modeling); and (3) international and national technical meetings and workshops. The PA noted a need to prioritize carbon markets and other carbon pricing instrument in such analytical work, and also requested that the Secretariat inform the PA, prior to each resource allocation, on the scope and schedule of the analytical studies and resource allocation.
4. At PA10 in November 2014, the PMR Secretariat prepared an [Update on PMR Upstream Analytical Work](#) with an objective to inform the PA on the status of the work, scope and timetable for the planned activities, as well as the corresponding resource allocations. At PA11 in March 2015, the PMR Secretariat presented an [update](#) of the progress made, concerning the country-specific work under the PAWP. In addition, a [presentation](#) was made on the “Checklist for Establishing Post-2020 Mitigation Scenarios,” developed under the PAWP to help technical experts and policy makers draw on good practices to construct scenarios, and facilitate exchange and building common understanding of key indicators and assumptions.
5. At PA12 in May 2015, and as part of the overall discussion on strategic orientation for the future of the PMR, the PMR Secretariat prepared the “*Note on Options for Funding Additional Activities under the PMR: Update and Proposed Way Forward*” ([PMR Note PA12 2015-4](#)), which included the progress made under the PAWP. The PA (through [Resolution No. PA12/2015-1](#)) allocated US\$3 million from

the remaining balance of the approved funding in FY15 towards FY16. The PA noted that, going forward, the links between the activities supported under the PAWP and those under the ICPs' MRPs should be further clarified.

6. At PA13 in October 2015, the PMR Secretariat presented a status update, and proposed broad themes of the PAWP and country-specific support for FY16 ([PMR Note PA13 2015-2](#)), including an effort to streamline the ongoing and planned activities into two types of support: (1) analytical work and modeling and (2) interactions between carbon pricing and other policies. The Note recognized that, from FY17 onward, the work related to policy analysis at the country level is expected to be carried out within an integrated approach for funding additional activities under the PMR. For more information, see PMR Note PA14 2016-1 titled "Strategic Orientation for the Future of the PMR: Proposal for the Use of Additional Funds."

III. UPDATE ON FY16 ACTIVITIES

A. Country-level activities

7. Prior to and after PA13, a number of ICPs have submitted their Expression of Interests (EoIs) for receiving support under the PAWP. The PMR Secretariat, based on the EoIs received and further consultation with the interested ICPs, have planned, initiated, or undertaken the following country-level activities in FY16:

(i) Brazil

8. The PMR supported work in Brazil built low-hydrology scenarios for 2015-2030 and simulated their consequences for the Brazilian energy system, in particular in regard to additional thermal power and increase of CO₂ emissions, as part of a baseline scenario in the context of the INDC. This study used: (i) probabilistic dispatch optimization model, (ii) detailed representation of the complex Brazilian power generation and transmission system, and (iii) large historical hydrology series. Such approach was consistent with current planning practice of the sector and therefore easier to use for internal consultations to establish a baseline scenario that take into account climate vulnerability of the sector. The study also analyzed alternative scenarios that allowed compensation for the increase of emissions in case of a dry hydrology and showed that such compensation could be achieved via energy efficiency measures. This result fed into internal discussions that eventually led Brazil to decide to incorporate a 10% energy efficiency gain in the power sector by 2030, as part of the Brazilian INDC. The study is now complete and the report is being translated to English.

(ii) Chile

9. The PAWP supported Chile on two projects initiated in FY15 and completed in FY16. The first was an economic modelling exercise that provided analysis of the impacts of the carbon tax. Several different scenarios were analyzed including the current design and possible adjustments such as different

carbon tax levels and cost past through arrangements. The second was a qualitative assessment of the interactions of the carbon tax with other policies in the energy sector. The results of both studies were discussed with a broad range of government and private sector stakeholders in Chile at two workshops. The reports are expected to contribute to the ongoing policy discussion around the carbon tax and carbon pricing more generally.

10. More recently a new analytical project has been initiated to assist Chile in preparing an action plan for the energy sector to contribute to the INDC. The work will review the potential mitigation options; identify possible policy measures, including carbon pricing, for the energy sector that could contribute to the INDC; model and assess those policy measures; and recommend a suit of policy measures that can form the basis of an action plan for INDC implementation in the energy sector.

(iii) Colombia

11. Modeling and analytical work supported by the PAWP in 2015 and finalized in Q1 2016 was coordinated by the Ministry of Environment and Sustainable Development (MADS) and carried out by the Universidad de los Andes and the National Planning Department (DNP). It built upon the modelling work done in the context of Colombia's Low Emissions Development Strategy program (ECDBC). The work focused on (i) deepening the bottom-up sector analysis on technical mitigation options, review of reference emissions scenarios, and development of alternative mitigation scenarios; (ii) analysis of macro-economic impacts of selected mitigation scenarios and enabling policy instruments; and (iii) assessment of possible economy-wide mitigation targets and its implications in the Colombian context. Interim assessment outputs fed into Colombia's INDC decision-making process and were used to substantiate Colombia's INDC presentation to the UNFCCC.
12. In the context of the upcoming development of an INDC implementation strategy, including discussion of INDC effort-sharing approaches, MADS has requested to focus PAWP support this year in (i) macro-economic modelling and assessment of explicit price-based instruments (carbon tax, emissions trading) to implement emissions reductions targets conducive to achieving Colombia's INDC mitigation contribution, and (ii) modeling and preliminary analysis of core ETS design options and, accordingly, development of recommended ETS design roadmap. Terms of reference are being developed with MADS, lead entity for INDC implementation roadmap, and DNP, lead entity for macro-economic modelling with its Colombia Climate Change CGE.

(iv) Costa Rica

13. In collaboration with the World Bank's ESMAP energy sector technical assistance program, the PAWP supported Costa Rica's Ministry of Environment and Energy (MINAE) with just-in time analytical work for their INDC determination process in 2015. The work, carried out by an ad-hoc research team anchored at MINAE's Climate Change Directorate, focused on bottom-up modelling and analysis comprising of (i) development of plausible reference scenarios for sector activity and associated GHG emissions in five priority sectors (energy, transport, forestry, agriculture, waste management); (ii) the

prioritization and assessment of emissions mitigation options by sectors, and subsequent development of marginal abatement cost (MAC) curves; and (iii) the exploration of alternative emissions reduction scenarios to reach different levels of mitigation ambition in the mid- and long-term. The assessment results have served as a basis to initially scope the mitigation gap to reach Costa Rica's ambitious INDC and associated long-term deep decarbonization pathway.

14. Building upon the PAWP-supported 'forecast work' in 2015, MINAE has requested to extend the modelling and analytical support with the overarching objective of deepening the analysis of the quantified emission reduction objectives made in its INDC and exploring decarbonization pathways to achieve these objectives. To this end, this activity will develop a country-specific modeling framework and a capacity building program that allows continuous integration and update of improved data on existing and new mitigation actions and programs, by sectors, and the analysis of enabling mitigation policy instruments. Terms of work are being finalized in consultation between MINAE and the PMR Secretariat, and will initiate in FY16 with the energy and transport sector assessments.

(v) Morocco

15. The Government of Morocco (GoM) has begun mobilizing analytical and policy efforts necessary to prepare the implementation of its (I)NDC post-2020. In particular, the GoM objective is to translate the set of NDC objectives and corresponding financial needs into a business-oriented roadmap of policies and actions that can provide a clear, strong incentives to low-carbon investment both at the national level and with international support. As part of a broader NDC and climate change related agenda in Morocco, discussions have been initiated to identify priority economic sectors where a dedicated policy and techno-economic analysis will be supported by the PMR to assist the GoM in defining effective policy measures to achieve its mitigation targets, including using market-based instruments, while ensuring positive impact on economic and social development. The work is expected to start in May 2016 with support of the PMR and enroll in a programmatic way in 2016-2017 to ensure more comprehensive sectoral coverage, leveraging other sources of the World Bank and other sources of international support.

(vi) Peru

16. The Ministry of Environment (MINAM), the agency in charge of Peru's INDC determination process in 2015, requested the modelling & analytical work carried out by the national research consortium behind 2012-2014 emissions scenario modelling work (under Peru's Plan CC program). The main areas of work covered (i) broadening the bottom-up analysis of mitigation options by key sectors, including financial analysis and assessment of co-benefits and enabling environment for a prioritized subset of mitigation options; (ii) refinement of sector MAC curves and development of alternative emissions reductions scenarios by 2030; and (iii) a CGE-based analysis of macroeconomic impacts of the proposed 2030 mitigation scenarios. The assessment results informed Peru's INDC cross-sectorial discussion on an ongoing basis during 2015 and underlie Peru's economy-wide mitigation target as expressed in their INDC.

(vii) South Africa

17. To reach its GHG reduction objectives, South Africa has proposed a package of policies and economic instruments, including an economy-wide carbon tax which will interact with a number of existing policies, programs and plans, including Desired Emission Reduction Outcomes (DEROs) and carbon budget. The PMR's support to South Africa under the PAWP aims at reviewing the principles used in approaching GHG reduction in the country and when combining the carbon budget and carbon tax, as well as assessing the appropriateness and effectiveness of combining the carbon budget with the carbon tax in achieving South Africa's emission reduction goal. In particular, the analytical work consists of the following components: (1) Review of the principles used in approaching greenhouse gas emission reduction in South Africa and of combining the carbon budget and carbon tax; (2) Assessment of the appropriateness and effectiveness of combining the carbon budget with the carbon tax in achieving South Africa's emission reduction goal, including recommendations on the best alignment option for the two instruments; and (3) Analysis of international experience in integrating carbon budgets with different carbon pricing instruments, such as the carbon tax. This work is ongoing and is expected to be finalized by the end of FY16.

(viii) Turkey

18. The Ministry of Environment and Urbanization (MoEU) has expressed interest to receive PMR policy support to strengthen local modeling capacity, practices and tools in regard to analyzing mid- to long-term national GHG emissions trajectory, mitigation policy options, and associated impacts. The work is expected to complement upstream activities implemented under Turkey's Market Readiness Proposal related to the use and design of Market Based Instruments. The MoEU is currently working on further defining specific modalities, timeline and deliverables for the project activities.

(ix) Vietnam

19. The Government of Vietnam (GoV) is about to start finalizing actions under its NDC through 2020 based on the INDC targets and is aware that it requires strengthening of existing policies and introduction of new policy actions. This analytical advisory will (i) allow the GOV to choose how to meet the GHG mitigation goals (based on the INDC targets) effectively, (ii) ensure implementation of the technical investment and behavioral measures to achieve intended goals, (iii) focus on assessing alternative policy actions and incentives that would enable fulfillment of government programs, (iv) facilitate alignment and coherence across various government policies and assess their joint impact on national GHG emissions and finance, and (v) build on the prior analytical work, especially the World Bank's Low Carbon study for Vietnam. This output of this analytical advisory will be fed into the upcoming PMR activities. This work just started in April 2016 and is expected to complete by Q1 2017.

B. Program-level activities

20. This section provides an update of program-level activities carried out under the PAWP in FY16 after PA13, including the Technical Workshop on “Post-2020 Mitigation Scenarios and Carbon Pricing Modeling” and the report on “Interactions between Energy and Carbon Pricing and Policies”. Other program-level activities in FY16 were reported at PA13 can be found in the Note on “Policy Analysis Work Program: Status Update” ([PMR Note PA13 2015-2](#)).

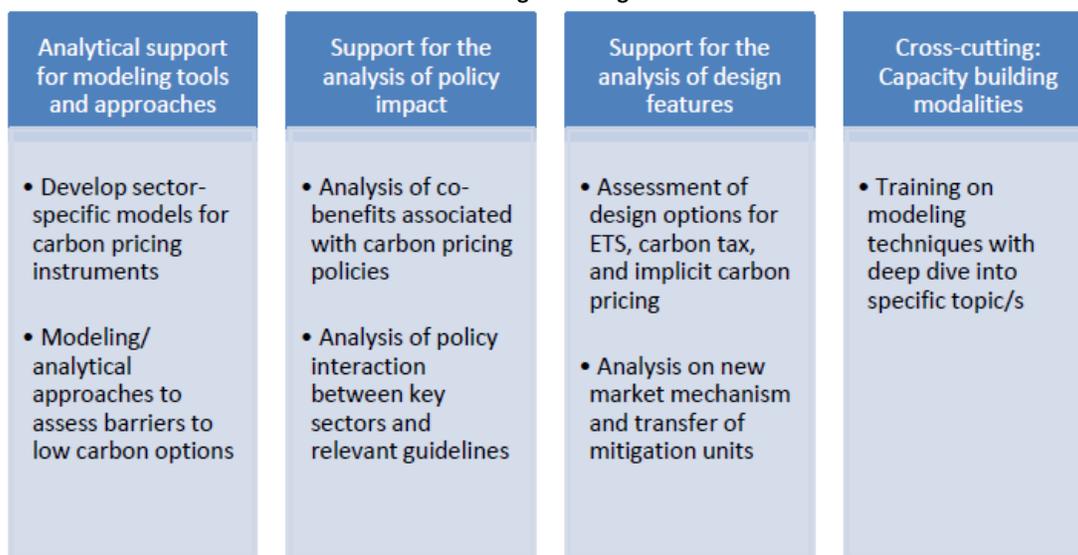
(i) Scoping Technical Workshop on “Post-2020 Mitigation Scenarios and Carbon Pricing Modeling”

21. The [technical workshop](#) convened on February 1st–3rd in Brasilia, Brazil, by the PMR and hosted by the Ministry of Finance of Brazil, brought together more than 50 policy makers and technical practitioners from PMR countries and international experts from research organizations and academia. Overall, it provided participants with an opportunity to:

- Share insights and lessons learned throughout the technical assessment work underlying countries’ low emissions development strategies and, in particular, INDC/NDC decision-making process;
- Discuss common analytical challenges and gaps related to the design and operationalization of possible INDC/NDC implementation strategies, particularly with regards to the technical analysis of mitigation options and enabling policy instruments;
- Take stock of key issues and challenges facing expert modelers and policy makers when conducting carbon pricing modeling in support of an instrument design and assessment;
- Inform further work and identify key areas of support under the PAWP.

22. The workshop was specifically designed to solicit feedback from the participants on topics relevant to the PAWP and to help identify specific activities under the work program moving forward. Presentations and discussions from this PMR Technical Workshop are summarized in the [workshop report prepared by the Secretariat](#). The workshop participants discussed analytical issues that could be potentially included in the PAWP both at country- and program-levels by providing suggestions on both areas for which further support would be helpful, as well as on topics that could benefit from cross-country cooperation leveraging the PMR platform. In this regard, the activities identified by the participants are summarized in Figure 1 below and included in the proposed FY17 Work Program.

Figure 1: Potential PAWP activities identified at the Technical Workshop on “Post-2020 Mitigation Scenarios and Carbon Pricing Modeling”



23. Other relevant activities put forward at the workshop also include: (i) MAC-based simulation tool for carbon pricing policies; (ii) modeling tools and analysis of mitigation pathways including INDCs; (iii) assessment of linking national markets to create regional markets; (iv) assessment of cost and price impact of carbon pricing policies; and (v) strategies and approaches for national stakeholder engagement and consensus building.

(ii) Interactions between carbon pricing and sectoral policies

24. The report “Interactions between Energy and Carbon Pricing and Policies”, jointly developed with the World Bank Energy and Extractives Global Practice, is expected to be completed and circulated for external peer-review in June 2016. The report will provide an in-depth analysis of energy policies (e.g. taxation, markets, subsidies, regulation) in developed and developing countries, and how these have evolved over time. It will also explore potential convergences and conflicts between the objectives of energy policies (e.g. energy security and affordability, and competitiveness) and carbon pricing instruments, and discusses how these can be brought into accord. A technical framework will also be proposed for countries to analyze those issues. The PMR Secretariat is currently considering further work and collaboration on policy interactions in other key sectors – such as transport.

IV. PROPOSED ACTIVITIES GOING FORWARD

25. Building on the effort to streamline the ongoing and planned activities, and the outcomes of the Technical Workshop on “Post-2020 Mitigation Scenarios and Carbon Pricing Modeling” (Figure 1), this section presents a framework for future PAWP support at both country- and program-levels. Box 1 provides an overarching framework for activities at the country- and program-levels under the PAWP. Table 1 presents the matrix of future PAWP activities vis-à-vis the overarching framework.

Box 1: Overarching framework for future PAWP support

The PAWP will support activities, at the country- and program-levels, that fall within the following framework*:

- Support for the development and application of modeling tools and approaches;
- Support for the modeling and analysis of policy impact and policy interaction;
- Support for the modeling and analysis of policy design options and their implications; or
- Support for capacity building in modeling and policy analysis

*These groups of activities respond directly to the outcomes of the Technical Workshop on “Post-2020 Mitigation Scenarios and Carbon Pricing Modeling” (see, Section III.B) and are consistent with the streamlined support as proposed in [PMR Note PA13 2015-2](#)

A. Country-level activities

26. PAWP support for future country-level activities will fall within the framework provided in Box 1. Consideration of proposed new country-level activities under the PAWP will follow the process as described in PMR Note PA14 2016-1 titled “Strategic Orientation for the Future of the PMR: Proposal for the Use of Additional Funds” and fall into the category of Policy Analysis activities. The allocation of funding for country-level activities starting in FY17 onwards will be considered based on the following principles:

- (i) Relevance and applicability of the proposed activity to the preparation and implementation of the (Intended) Nationally Determined Contribution ((I)NDC) and overall mitigation strategy;
- (ii) Political commitment and support within the ICPs to the development and implementation of carbon pricing instruments; and
- (iii) Well-targeted scope of work that addresses critical analytical/modeling gaps with respect to (I)NDC and carbon pricing, and demonstrates the additionality to the MRP and other past/on-going work

Scope of work

27. The scope of work for future country-level activities under the PAWP will include the categories of activities defined within the overarching framework provided in Box 1.

28. The PAWP will support ICPs in developing activities that would effectively support the (I)NDC process as part of their overall mitigation strategy, positioning the work and developing the rationale for modeling activity from the (I)NDC's perspective while building on other past/on-going activities, identifying critical gaps with respect to modeling and (I)NDC, and framing the modeling work and questions to address those gaps, taking into account the stage of NDC development.
29. The PAWP will support ICPs in utilizing carbon pricing as a means to strengthening policy packages as part of the NDCs, through understanding the Participant's current status and challenges with regard to carbon pricing instruments and related policies, assisting the identification of relevant carbon pricing policy questions, and designing the analysis and scope of modeling activity in response specifically to these questions.
30. The review of any proposed activity related to the PAWP will evaluate whether and how it formulates a well-targeted proposal for support that would result in analytical and modeling outputs that are additional and/or complementary to other activities already planned/undertaken with PMR support, while avoiding duplication with other work outside the scope of the PMR.

Process¹

31. From FY17 onward, all country-level activities under the PAWP are expected to be carried out within an integrated approach for funding additional activities under the PMR. For more information, see the "Strategic Orientation for the Future of the PMR: Proposal for the Use of Additional Funds" (PMR Note PA14 2016-1)".
32. Based on the above considerations and the specific criteria laid out in PMR Note PA14 2016-1, interested ICPs are invited to submit proposals with a clear scope of activity and work plan, taking into account the availability of appropriate modeling tools and data, and the need for enhancing technical/analytical capacity locally to carry out the activity. The proposal will also describe specific tasks for PAWP support and associated budget and timeline.
33. The PMR Secretariat provided a template for proposals related to country-level PAWP support (annex to PMR Note PA14 2016-1), which shall be used by ICPs for the submission of proposals for PAWP support. In order to guide and facilitate interested ICPs in developing such a proposal, the PMR secretariat has further prepared a draft "Country-level Policy Analysis -- Proposal Tool" (Annex I of this Note).

¹ For more details on the process for submission and review of proposals, please refer the Note titled "Strategic Orientation for the Future of the PMR: Proposal for the Use of Additional Funds" (PMR Note PA14 2016-1)"

B. Program-level activities

34. The objective of the program-level activities is to supplement the country-level support using the same framework as set out above, through addressing analytical/modeling topics and issues with strong international dimensions and cross-country implications, responding to policy questions that are of common interests among the ICPs (particularly those that cannot be captured in the country-level work and require international modeling framework), and providing peer advice and facilitating technical exchange among the participants and the wider group of experts and practitioners (see Table 1). While country-specific activities are most critical, there is value addition in undertaking collective work at the program-level. In FY17, the PMR secretariat proposes two main activities, as laid out below.

Table 1: Matrix of PAWP support in FY17 and beyond

<i>Activity</i>	<i>Development and application of modeling tools and approaches</i>	<i>Modeling and analysis of policy impact and policy interaction</i>	<i>Capacity building in modeling and policy analysis</i>	<i>Modeling of policy design options and their implications</i>
Country-level activities	ICP's proposal (in-depth, detailed country-specific modeling)	ICP's proposal (country-specific issues)	ICP's proposal (targeting local technical experts, local modelers, local institutions)	ICP's proposal (in-depth, country-specific modeling)
Program-level activities	Carbon pricing simulation tool (global model, linkages between ICPs and other regions, support linking national model to international framework/scenarios)	Carbon pricing simulation tool (international dimensions, and cross-country issues)	Carbon pricing simulation tool (targeting policy makers, non-modelers, general audience, peer exchange, model comparison)	N/A
Global and regional workshops (consolidate all country- and program-level activities around the overarching framework)				

Carbon Pricing Simulation Tool

(a) Rationale

35. Different modeling approaches are appropriate for different policy questions and country characteristics. A mix of modeling tools are required to address complex policy questions that are typically found in the context of the development and implementation of (I)NDCs and other mitigation policies. From this perspective, modeling exercise is best set up using detailed, country-specific

frameworks, such as those developed/planned under the country-level PAWP activities. However, there are important international dimensions and linkages that go beyond the scope of country-specific work. These, in turn, call for a complementary modeling framework that explicitly captures cross-country aspects (e.g. international policy direction/cooperation and implications on global mitigation targets, international trade and competitiveness, policy spillovers and external macroeconomic factors that potentially affect the determination of country-level policies). It is important to emphasize that such international frameworks cannot replace country level modeling, and will only provide additional perspective to the policy discussion, through model comparison.

36. The existing modeling tools (bottom-up, top-down, and hybrid) for carbon pricing modeling, whether country- or international-level, are complex and are not suitable for direct/hands-on utilization and application by policy makers and non-modelers. Therefore, there is a need for a carbon pricing modeling tool whose design is oriented towards policy makers, for the purposes of policy analysis/discussion, developing consensus around emission and policy scenarios, and capacity building.
37. In response to this and the needs for support identified at the Technical Workshop on “Post-2020 Mitigation Scenarios and Carbon Pricing Modeling”, the PMR Secretariat plans to develop a Carbon Pricing Simulation Tool that would be completely open-source and made available and accessible for the PMR participants, as well as the broader international community. The Carbon Pricing Simulation Tool would have the following features:
 - Platform (front-end): Web-based, user-friendly simulation tool, with flexibility in policy choice and ambition levels;
 - Geographical coverage: Global, with disaggregation for individual ICPs (and other PMR participants/partners as needed);
 - Target policies: Explicit and implicit carbon pricing policies (international and national policies);
 - Impacts: GHG emissions across sectors relative to (I)NDC and global targets, key macroeconomic indicators (e.g. GDP growth, competitiveness, international trade), sectoral/structure changes, co-benefits, financial/economic implications;
 - Underlying model (back-end): Existing IPCC-grade, multi-country hybrid modeling framework.

A comparison between the proposed Carbon Pricing Simulation Tool and other similar tools is provided in Annex II of this Note

(b) Potential utilization

38. Using the Carbon Pricing Simulation Tool, the ICPs would be able to simulate carbon pricing policies as part of their policy package, compare modeling results with the national models and understand the differences, consider options for international cooperation, as well as support the steps of (I)NDC preparation and implementation as envisaged in the Paris Agreement. The Carbon Pricing Simulation

Tool could be housed and maintained by the PMR Secretariat and/or a partner institution, and would be used as a common foundation for the PMR to deliver analytical and modeling support, and capacity building activities to ICPs focusing on policy makers/non-modelers².

(c) Proposed next steps

39. The PMR Secretariat will present an initial design and detailed proposal of the Carbon Pricing Simulation Tool at PA15 for feedback and inputs, to achieve the tool characteristics that best suit the need and requirements of the ICPs. This activity will be conducted in phases beginning in FY17 with the first set of focus ICPs (4-5 countries) that are interested in building specific scenarios within the tool³. The exercise is expected to be completed in FY18. The Secretariat will also explore partnering with organizations that have extensive experience and expertise in developing similar web-based and open-source tools, for example, the World Resources Institute, the Euro-Mediterranean Center on Climate Change, the University of Maryland/Pacific Northwest National Laboratory, and the government of the United Kingdom. For quality assurance purpose, the development of the tool will be peer reviewed by modeling experts in the IPCC community.

Global and regional workshops and trainings on policy analysis and carbon pricing modeling

40. A global event on policy analysis and carbon pricing modeling is tentatively planned in December 2016, as a follow up of the Technical Workshop on “Post-2020 Mitigation Scenarios and Carbon Pricing Modeling”. The primary objectives of the global event are to share and disseminate knowledge generated from the PAWP (both country-level and program-level) up to that point, provide a venue for technical exchange among the national and international experts on relevant topics and on select country-level activities under this work program, form an informal PMR’s modeling experts network for future peer advice/exchange, and deliver analytical and technical capacity building activities to ICPs. The PMR secretariat will consult with PMR participants and partners on the scope, design, and organization of the global event.
41. Additional regional/international workshops and trainings may be organized around a target group of countries or on a topic of common interest among the ICPs in the future. However, further consultation is required to determine the need for such regional/international event.

Budget

42. Overall, the proposed budget envelope for all program-level activities for FY17 is US\$ 400,000. This comprises (i) US\$ 250,000 for the first phase of the Carbon Pricing Simulation Tool, and (ii) US\$

² Capacity building for expert modelers and model users are part of the country-level PAWP activities

³ It is important to note that all individual ICPs will be included in the Carbon Pricing Simulation Tool in any case. However, the Tool will require additional efforts to tailor closely to country-level policy scenarios to capture the current/future policy directions and potential/new policies.

150,000 for a global event and a regional workshop/training. The total budget of the Carbon Pricing Simulation Tool covering FY17 and FY18 is estimated at US\$ 500,000⁴.

V. ACTION BY THE PA

43. The PA is invited to provide feedback on the proposed activities under the PAWP for FY17. Implementing Country Participants are invited to indicate their interest in receiving support for additional activities under the PAWP at the country- and the program-levels.

⁴ This estimate assumes that 8-10 ICPs are interested to develop specific carbon pricing and/or (I)NDC scenarios, within the Carbon Pricing Simulation Tool, that are consistent with their country-level models and overall mitigation strategy, during FY17-18. Additional resources will be necessary for further inclusion of ICPs. The estimate includes tool development only. Consultation and review process will be conducted through existing PMR events.

Annex I: Country-level Policy Analysis – Proposal Tool [DRAFT FOR FEEDBACK]

This purpose of this Proposal Tool is to provide guidance and support to interested PMR ICPs in developing a proposal for the analytical and modeling support under the PMR Policy Analysis Work Program (PAWP) as required in the Proposal Template, which can be found in Annex 2 of the “Strategic Orientation for the Future of the PMR: Proposal for the Use of Additional Funds” (PMR Note PA14 2016-1)”. This tool may be used in conjunction with “Checklist for Establishing Post-2020 Mitigation Scenarios”, which provides overall guidance on the development and presentation of medium- and long-term emission pathways.

The interested ICPs are encouraged to answer the guiding questions provided by this Tool in respective sections of the Proposal Template. The guiding questions are intended to help the ICPs (i) diagnose the current status of their modeling/analytical work in relation to carbon pricing policies and in the context of the preparation and implementation of Nationally Determined Contributions (NDCs), (ii) identify the modeling/analytical gaps and relevant policy questions, and (iii) design an appropriate modeling exercise and framework to be put forward for targeted support by the PAWP.

I. Overall mitigation strategy and Nationally Determined Contribution (NDC)

The PAWP will support ICPs in developing activities that would effectively support the NDC process as part of their overall mitigation strategy, positioning the work and developing the rationale for modeling activity from the NDC’s perspective while building on other past/on-going activities, identifying critical gaps with respect to modeling and INDC, and framing the modeling work and questions to address those gaps, taking into account the stage of NDC development. ICPs may use the guiding questions below, as applicable, for Section I of the Proposal Template.

Understanding the status of NDC preparation and implementation

1. Has INDC been submitted to the UNFCCC? If answer yes, please use question 1.1. If answer no, please use question 1.2.
 - 1.1. Has a mitigation contribution, expressed as a GHG emission reduction objective/targets, been established in your country’s INDC? If answer yes, please use questions 1.1.1-5. If answer no, please use question 1.3
 - 1.1.1. Please describe the mitigation contribution, GHG emission reduction objectives and the coverage with respect to sectors, key policies and measures, GHG emissions, and timeframe
 - 1.1.2. Has a business-as-usual (BAU) or a baseline emission trajectory been developed in INDC? If yes, please describe how this was undertaken with respect to the scope of modeling activity, the modeling approach, main BAU assumptions, and provide background report/reference as available
 - 1.1.3. Please provide information as to how the emission reductions objectives/targets have been set in INDC? Please describe this in relation to the BAU emission, the scope of modeling activity, the modeling approach, main assumptions, and provide background report/reference as available
 - 1.1.4. Has a roadmap/action plan been developed as part of INDC or elsewhere toward achieving the envisaged mitigation contribution within the stated timeframe/by the stated target year? Please provide details and references.

Identifying critical analytical/modeling gaps and needs in the context of NDC

- 1.1.5. What, in your view, are critical gaps/needs for modeling work, given the status/context of INDC provided above? Please identify the areas where additional support is required to strengthen INDC toward the preparation/implementation of NDC

Additional guiding questions for 1.1.5:

- (i) Any additional analysis/modeling needed to make the BAU or mitigation scenarios/goals more credible and robust?*
- (ii) Any policies and measures (planned/under consideration/already implemented) missing from the scenarios?*
- (iii) Any new perspectives (such as financial, economic, social, emission impacts, co-benefits, roadmap) need to be developed to support NDC preparation/implementation?*
- (iv) Is there a mechanism in place to track/evaluate the progress of NDC implementation vis-à-vis the emission reduction objectives and/or room for increasing ambition?*

Note: if you have answered question 1.1.5, please ignore question 1.2 and 1.3.

- 1.2. Please indicate any future plan for developing and submitting NDC, and timeframe, in order to help identify a suitable timing of potential PAWP support. Please also answer question 1.3
- 1.3. Would the PMR's PAWP support be helpful in areas such as developing emission reduction targets, assess potential policies/measures to achieve them, and linkage to INDC? If yes, please elaborate on these aspects.

II. Level of political commitment and support within the country to carbon pricing

The PAWP will support interested ICPs in strengthening their policy packages as part of the NDCs, through understanding the Participant's current status and challenges with regard to carbon pricing instruments and related policies, assisting the identification of relevant carbon pricing policy questions, and designing the analysis and scope of modeling activity in response specifically to these aspects. This section of Proposal Tool is also intended to help ICPs demonstrate their commitment to carbon pricing instruments, as part of NDC, MRP activities, and overall mitigation strategy. ICPs may use the guiding questions below, as applicable, for Section II of the Proposal Template.

Demonstrating country's commitment to carbon pricing

- 2.1. Please provide information as to whether any type of carbon pricing instruments (such as carbon tax, emission trading scheme, crediting/carbon market) been recognized as part of INDC and/or MRP? If answer yes, please use question 2.1.1-3. If answer no, please use question 2.2.

- 2.1.1. Please describe the individual carbon pricing instruments, their contexts, development/implementation status, and future directions
- 2.1.2. For each policy, please explain whether and how analysis/modeling was conducted to support its design and implementation

Identifying critical analytical/modeling gaps and needs for carbon pricing

- 2.1.3. What, in your view, are the critical gaps/needs for the modeling of carbon pricing instruments? Please identify the areas where additional support is required, including strengthening linkages with the preparation/implementation of NDC

Additional guiding questions for 2.1.3:

- (i) *Are the carbon pricing policies modeled explicitly in the BAU or INDC commitment scenarios?*
- (ii) *Did the modeling work reflect well the actual design of the policies?*
- (iii) *Any additional analysis/modeling needed to support the design/implementation of the policies, to gain better understanding of design options, barriers, policy impacts (financial, economic, social, co-benefits), and their interaction (complementarity and conflicts) with other policies?*

Understanding the use of implicit carbon pricing policies

- 2.2. Please provide information as to whether any type of implicit carbon pricing policies (such as fuel/energy taxes, fossil fuel subsidies reform, and energy/electricity tariff reform) has been recognized as part of INDC and/or MRP? If answer yes, please use question 2.2.1-3. If answer no, please use question 2.3.

- 2.2.1. Please describe the individual policies, their contexts, development/implementation status, and future directions
- 2.2.2. For each policy, please explain whether and how analysis/modeling was conducted to support its design and implementation

Identifying critical analytical/modeling gaps and needs for implicit carbon pricing

- 2.2.3. What, in your view, are the critical gaps/needs in the modeling of these policies? Please identify the areas where additional support is required to strengthen this in the context of INDC and/or the preparation/implementation of NDC

Additional guiding questions for 2.2.3:

- (i) *Are the policies modeled explicitly in the BAU or INDC commitment scenarios?*
- (ii) *Did the modeling work reflect well the actual design of the policies?*
- (iii) *Any additional analysis/modeling needed to support the design/implementation of the policies, to gain better understanding of design options, barriers, policy impacts (financial, economic, social, co-benefits), and their interaction (complementarity and conflicts) with other policies?*

- 2.3. Please explain if any explicit and implicit carbon pricing policies has been planned, considered, or implemented elsewhere outside of INDC and MRP.

- 2.3.1. Would the PMR's PAWP support be helpful in modeling/analyzing any of these carbon pricing policy options, their implications, and potential linkages to NDC? If yes, please elaborate.

III. Scope of work and additionality of proposed activities

Interested ICPs are invited to describe the scope of activities, related deliverables, and work plan in this section, taking into account the availability of appropriate modeling tools and data, and the need for PAWP support on enhancing technical/analytical capacity locally to carry out the activities. The section will also help demonstrate how the proposed activities would result in analytical and modeling outputs that are additional and/or complementary to activities already planned/undertaken with PMR support, while avoiding duplication with other work outside the scope of the PMR. ICPs may use the guiding questions below, as applicable, for Section III of the Proposal Template.

Scope of work

- 3.1. Based on your response to the guiding questions in Section I and II, please provide a brief description and the scope of support from the PMR's PAWP that would help address the gaps and/or policy questions identified in those Sections.

[This section should formulate clear policy questions and propose the scope of analysis/modeling work to be undertaken; in case several gaps/questions were identified in the previous section, explain why the proposed activities are prioritized for PAWP support; 200 words max]

- 3.2. Please explain how the proposed activity would benefit the preparation/implementation of NDC

[Explain whether and how the work would support the revision/update of INDC, the preparation of NDC, the implementation of NDC, increasing ambition from the previous INDC/NDC, or the processes under the Paris Agreement, etc.]

- 3.3. Please explain whether and how the proposed activity would model/analyze any specific carbon pricing instruments

Methodological framework

- 3.4. Please describe the modeling approach to be adopted for this work.

[Sketch out broad modeling framework: type of model, time horizon, sector(s), geographical coverage, type of data/database required, consistency with model(s) used for INDC or National Communications; 100 words max]

Modeling readiness and need for capacity building

- 3.5. Please indicate whether there are appropriate modeling tools readily available for this particular work. If yes, please provide details and references.

3.6. Please indicate whether there are datasets readily available for this work? If yes, please provide details and references

3.7. If answer no to 3.5 and/or 3.6, please describe strategy to address these constraints and indicate the type(s) of support needed from the PMR's PAWP with respect to capacity building and training.

Additional guiding questions for 3.7:

(i) *Is it feasible to adapt/modify an existing tool?*

(ii) *Is there a need to develop a new tool/methodology and relevant capacity with PAWP support?*

(iii) *To what extent additional support from PAWP is required to obtain necessary data and policy information (e.g. through consultation workshops, data procurement, database compilation, primary surveys/interviews)?*

(iv) *Is there local capacity to undertake or support the proposed activity?*

(v) *Is there a need for PAWP support for expert guidance on the design of modeling framework and the selection of appropriate models for the proposed activity?*

3.8. Please provide an overview of the organizing framework for this work. List of coordinating agencies, potential institutions and partners to be involved, and their respective roles. Also, explain how this organizing framework is planned in relation to the MRP organizing framework.

Demonstrating the additionality of the proposed activity

3.9. Please provide details of similar modeling exercises already undertaken in your country, as applicable, and explain why they are inadequate for addressing the policy questions/gaps specified in 3.1.

3.10. Please explain how the proposed activity would complement the MRP activities and other work being planned/undertaken under the PAWP. Describe the synergies, and list any potential overlaps and duplications, and strategies to avoid them.

IV. Budget and timeline

The interested ICPs are kindly requested to describe specific tasks for PAWP support and associated budget and timeline in this Section. ICPs may use the table below for presentation of indicative budget and timeline.

Budget and Timeline

4.1. Please specify tasks for the PMR's PAWP support, based on the proposed scope of work in section III.

Tasks	Budget/resource requirements	Timeline
1.		
a.		
b.		
2.		
3.		
a.		

b.		
4.		
...		
...		
Total budget:		US\$ XXX,XXX

V. Output/results of the implementation

The ICPs are kindly requested to clearly define the final output(s) of the proposed activity in this section, as well as describe how the implementation of proposed activity and the output(s) would be monitored and evaluated to ensure their effectiveness in supporting carbon pricing instruments, NDC, and/or the country's overall mitigation strategy.

5.1. Please list individual final output(s) envisaged from the proposed activity

Output 1: XXX
 Output 2: XXX
 Output 3: XXX

5.2. Please describe the process of monitoring and evaluation that may be put in place for the proposed activity

Annex II: Comparison between the proposed Carbon Pricing Simulation Tool and other similar simulation tools with user-friendly interface*

<i>Characteristics/ Tool</i>	Carbon pricing modeling	Including all individual ICPs	International dimensions and cross-country linkages	GHG emissions and sectors in INDC	Relevant impacts beyond GHG emissions	Hands-on use by non-modelers	Underlying model
Global Pathway Calculator <i>(UK, WRI)</i>	No	No	No	All	Yes	Yes	Bottom-up
WITCH model simulator <i>(CMCC/FEEM)</i>	Yes	No	Yes	All	Yes	Yes	Dynamic Optimization (IPCC)
LEAP <i>(SEI)</i>	No	No (country-level)	No	All	Limited	No	Bottom-up (peer-reviewed)
RunGTAP <i>(Purdue)</i>	Yes	Yes	Yes	Partial	Yes	No	Top-down CGE (peer-reviewed)
EFFECT <i>(World Bank/ESMAP)</i>	Limited	No (country-level)	No	Partial	Limited	No	Bottom-up
MAGICC <i>(NCAR et al)</i>	No	No (global)	No	All	No	Yes	GCMs/IAMs (IPCC)
EVALUATE <i>(World Bank, Enerdata)</i>	Yes	No	Limited (emission trading only)	Partial	Limited	Yes	Econometric, partial equilibrium (Peer-reviewed)
Proposed Carbon Pricing Simulation Tool <i>(World Bank/PMR)</i>	Yes	Yes	Yes	All	Yes	Yes	Hybrid CGE-bottom-up (IPCC)

*Different models and simulation tools are designed for different purposes. The only objective of this comparison is to illustrate the way in which the proposed Carbon Pricing Simulation would be designed to address specific needs of ICPs in the context of PAWP program-level activities.