Dialogue on methodology for measuring and reporting emissions savings from energy-related activities

10 May 2017 Bonn, Germany

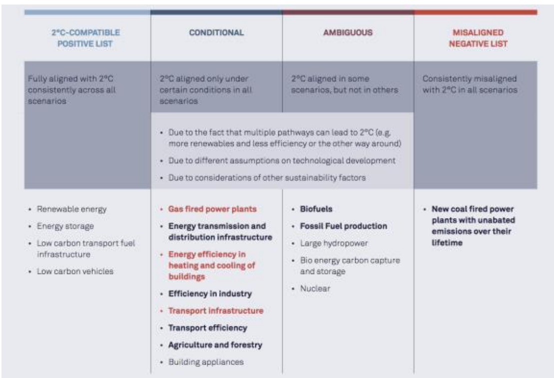
Objective of dialogue

The 1 Gigaton Coalition's mission is to measure and report reductions in greenhouse gas emissions resulting from renewable energy and energy efficiency initiatives and programmes, which are estimated to be 1 GtCO2e by 2020, and which are not accounted for in UNEP's Emissions Gap Report. The 1 Gigaton Coalition's first report was the first effort to assess emissions savings from various renewable energy and energy efficiency initiatives. It found that based on a sample of bilaterally supported projects in the energy sector that these initiatives could save 1.7 $GtCO_2$ per year by 2020. The 2016 1 Gigaton Coalition Report refined the approach developed in the inaugural 2015 report, expanding a database of internationally supported RE and EE projects in developing countries from 42 to 224. These projects were estimated to reduce GHG emissions by an aggregate 0.116 $GtCO_2$ annually in 2020.

The dialogue was held on 10 May with a selected number of experts from BMUB, GIZ, DTU, UNFCCC, IGSD, OECD, IEEJ, Mitsubishi UFJ Research and Consulting Co., Ltd, IIASA, Climate Analytics and Deutsches Institut für Entwicklungspolitik. Its aim was to seek their expert opinion on a new proposed approach to develop robust criteria for 1.5°C and 2°C compatibility at the project and sector levels, and to apply them to the full renewable energy and energy efficiency project database which was built for the 2016 report. The issues used to guide discussion on how to develop these compatibility criteria are explained below. This paper summarizes the points made during the discussion.

New direction for the 2017 Report

Chapter 6: "A Path Forward: New Concepts for Estimating GHG Impacts," of the 2016 1 Gigaton Coalition Report, proposed an alternative approach for assessing emission reductions at the project and sector levels: i.e. **determining if a project is 1.5°C or 2°C compatible or not**.



2°C-COMPATIBLE POSITIVE LIST	CONDITIONAL	AMBIGUOUS	MISALIGNED NEGATIVE LIST
Fully aligned with 2°C consistently across all scenarios	2°C aligned only under certain conditions in all scenarios	2°C aligned in some scenarios, but not in others	Consistently misaligned with 2°C in all scenarios
	• Due to the fact that multiple pathways can lead to 2°C (e.g. more renewables and less efficiency or the other way around) • Due to different assumptions on technological development • Due to considerations of other sustainability factors		
• Renewable energy • Energy storage • Low carbon transport fuel infrastructure • Low carbon vehicles	• **Gas fired power plants** • **Energy transmission and distribution infrastructure** • **Energy efficiency in heating and cooling of buildings** • **Efficiency in industry** • **Transport infrastructure** • **Transport efficiency** • **Agriculture and forestry** • Building appliances	• **Biofuels** • **Fossil Fuel production** • Large hydropower • Bio energy carbon capture and storage • Nuclear	• **New coal fired power plants with unabated emissions over their lifetime**

Creating specific 1.5°C and 2°C-compatibility criteria and applying them to internationally supported RE and EE projects would provide key inferences and conclusions:

•*Evaluation of **local and national** conditions necessary for 1.5°C and 2°C-compatible pathways.*

•*Analysis of **additional efforts** to make projects 1.5°C and 2°C-compatible.*

•*Specific **policy** recommendations for addressing project and sector level problems that create 1.5°C and 2°C-incompatibilities.*

•***Sector level aggregation** of emissions outcomes and resulting policy implications*

This approach would overcome two shortcomings of the previous approaches used in the first and second reports:

1. *It does not rely on a **counterfactual baseline** (i.e., a business-as-usual scenario reflecting what would have happened in the absence of specific policy intervention or technology adoption).*

2. *It does not require the **attribution of a specific action to a single player**, which is difficult as national governments' Paris pledges or nationally-determined*

Questions to guide methodological development of compatibility criteria

Issue 1: Developing 1.5°C and 2°C-compatibility criteria would rely on science-based 1.5°C and 2°C emissions scenarios. This research endeavor would use the requirements for 1.5°C and 2°C pathways developed by the IPCC, UNEP Emissions Gap Report, and other scientific scenarios.

***Question 1**:* What assumptions might we take into consideration when developing project criteria that are 1.5°C and 2°C compatible?

Question 2: What criteria, other than zero emissions (i.e., for 2°C compatibility) and negative emissions (i.e., for 1.5°C compatibility), should we be utilizing?

Question 3: How might we develop criteria to guide secondary effects (e.g., as in the biomass example above) or secondary interventions (e.g., capacity building)?

Issue 2: Determining 1.5°C and 2°C-compatibility at the project level would require life-cycle emissions assessment for various project types. A science-based life-cycle assessment protocol system will have to be used.

Question 1: What other methods can be used to assess 1.5°C and 2°C-compatibility, other than life-cycle assessment approaches?

Issue 3: Assessing 1.5°C and 2°C-compatibility would entail creating "positive" and "negative" lists – categories of projects that are, respectively, compatible or incompatible under all conditions – as well as quantitative and qualitative conditions for compatibility. This process would constitute the bulk of original research in this chapter of the 2017 report. With this research, we would seek to answer key questions about project- and sector-level 1.5°C and 2°C-compatibility, including what economic, policy, and physical conditions are required to ensure compatibility.

Question 1: How far and deep into Scope 3 (i.e., upstream and downstream) emissions should we be looking to evaluate 1.5°C and 2°C-compatibility?

Issue 4: Observed trends in conditions that determine 1.5°C and 2°C-compatibility for various project types would inform policy and best practice recommendations at the sector level.

Question 1: What kinds of 'best practice' recommendations would be helpful for countries, funders, and project developers in determining whether a project is 1.5°C or 2°C-compatible?

Issue 5: Pairing robust 1.5°C and 2°C-compatibility criteria for project types and sectors with updated emissions reductions estimates would provide insight on the world's current emissions trajectory and reveal what is required to move to 1.5°C and 2°C pathways.

The following points were made during the discussion:

Points to Consider for Developing Compatibility Criteria:

- Impact of different policies on potential and actual emission savings of projects/initiatives is extremely challenging to assess. The new approach could consider the **potential emissions avoided** rather than the actual emissions avoided. This information will be useful for donors and the countries who receive support from them.
- It would be easy to provide metrics for compatibility but **translating metrics** into the amount of emission savings is challenging. *For example*, a photovoltaic plant can be compatible with both high-emission and low-emission scenarios. During the lifetime of a photovoltaic plant, its first GW could be incompatible but its 10th GW might be compatible with 1.5/2 degree pathways. How can this inconsistency be tackled?
- Two different cases need to be considered for 1.5°C and 2°C compatible pathways. The project compatibility might depend on the speed of technology adoption.
    - **Case 1:** *If a project is compatible with 1.5°C, then it is automatically compatible with 2 °C.*
    - **Case 2:** *If a project is compatible with 2 °C but not necessarily compatible with 1.5°C.*
- Assessing **additionality** is important and must be included in the compatibility criteria.
- A project's contribution to the **different Sustainable Development Goals** (SDGs) can be examined.
- It is vital to consider **country-specific assessments** of what their pledges entail. *For example*: observations from the Cancun economic pledges show that each country has different ways of achieving its country pledges. The assessment data are not available for NDC pledges. This process is time-consuming and would not be achievable within a limited time frame for the 2017 report launch.
- Assessing country-context is important for compatibility criteria (i.e. in what context has a project been designed and implemented in the country?). The context also changes depending on how many projects are implemented on the ground. **Potential risk** exists in undertaking context-specific assessments as this process is tedious resulting often in the multiplication of several country-specific factors.
- In addition to the country context, **scale and speed** of implementation of projects needs to be included.
- The compatibility criteria should adopt **a sector-wise approach** to determine how much a sector is in line with the 1.5/2-degree development pathways.
- It is important to consider **secondary conditionality** and include a portfolio of technologies across sectors to have a real estimate of effects on investments.

Closing the Gap:

- The *UN 2016 Emissions Gap Report* shows that the emissions gap for 2030 is **12 to 14 $GtCO_2e$** compared with 2°C scenarios highlighting the gap between target and pledges. One proposed approach could be to focus on the **gap between current policies and targets** but not to consider pledges.
- The Emissions Gap is normally considered but there is an additional need to focus on the **Implementation Gap** and study how current policies can affect this. Resources can be easily allocated to close the implementation gap. This will help countries to showcase RE/EE projects and initiatives to meet their pledges.

Choosing the Right Methodology:

Since the methodology has to relate to the country-context, there is a need to assess different methodologies to support this effort. For example: A mixed methodology approach with the inclusion of surveys (to track country-specific information on emission savings) could be considered.

Additional Comments:

- Does the new proposed approach for 1.5°C and 2°C-compatibility take into consideration **global** scenario or **local** scenario?
- During assessment of renewable energy projects, would the focus be mainly on planned plant capacity (MW) or on the plant output in reality?
- The assessment calculations of the **additional Gigaton emissions reduced** due to a RE/EE project is extremely tricky. How could this be determined?
- *Example scenario:* A country has made 10% RE pledge in the energy mix by 2020 but fails to fulfil the pledge. This pledge gets carried over to 2030. How can country-cases like this be assessed?
- In addition to the supply side assessments, constantly changing **demand-side assessments** need to be examined however challenging it might be.
- If a positive list is used, would the positive list differ for **developing, emerging and advanced economies**?
- As pointed out in the discussion paper, projects that are closer to net zero emissions make a stronger contribution to a 1.5 or 2-degree scenario than projects that are e.g. at the average level of carbon intensity for a given sector under a 1.5 or 2-degree scenario. Is there a way to **differentiate the compatibility of different projects** in a way that has more gradations and is less binary?

The way forward

The outcome of this dialogue has been extremely valuable for understanding the challenges and potential solutions related to methodologies for calculating emissions savings from the energy sector. This will help refine the methodology to be used in the third report of the 1 Gigaton Coalition which will be published ahead of the Bonn COP23. Future similar dialogues may be held as the proposed approaches are being tested and more experience gained, with the ultimate aim of developing a unified methodology.

The 1 Gigaton Coalition would like to thank everyone who attended the workshop, and to its partners for their continued support. This dialogue will inform the third report of the 1Gigaton Coalition to be launched ahead of COP23.

The 1 Gigaton Coalition was initiated and is supported by the Government of Norway, and is coordinated by UN Environment.

For more information on how you can join the Coalition and be involved in its work, please contact us at *1gigaton@unep.org*, or via our website *1gigatoncoalition.org*