

**IAMC SWG on National Scenarios**  
**National Scenario Protocol Version 01**  
**Date: 16.11.2023**  
**Final for comments**

## **1. Background**

The architecture of the Paris Agreement combines bottom-up, country driven processes based on individual Nationally Determined Contribution (NDC) with top-down global stocktake (GST). Every five years, starting in 2028, each GST will evaluate the implementation of the Paris Agreement to assess collective progress towards achieving its purpose and long-term goals in terms of mitigation and adaptation<sup>1</sup>. The stocktake will also inform each of the nations to update and enhance their individual NDCs. The GST will be informed by best available science (though IPCC and other sources). The current pledges are on track for a temperature rise of 2.4-2.6°C by the end of this century. The updated NDCs, with Long Term Strategies (LTS) and Net Zero targets, only reduce less than one per cent of projected 2030 global greenhouse gas emissions (GHG), although 45 per cent is required to limit the rise in temperature to 1.5°C<sup>2</sup>.

It has been observed that national (mitigation) pathways and scenarios have gained major significance in the past couple of decades with countries pledging to the Copenhagen Accord (COP15), Paris Agreement (COP21) and most recently the Glasgow Pact (COP26). IPCC WGIII AR6 for the first time focused specifically on the quantification of short- and medium-term goals to assist policymakers to operationalize climate actions in accordance with the Paris Agreement and the Glasgow Climate Pact.

The assessment of the national climate pathways is fragmented and unequally largely distributed amongst the countries. Very few model intercomparison studies at national level have been conducted which compare the assumptions and conditions to build national long-term, low-carbon pathway. With ambitious target of net-zero, policy makers in every country require the best data, evidence from modelling and analysis based on scientific consensus.

## **2. Purpose of SWG**

The main purpose of the SWG is to facilitate and coordinate interactions between the research community and relevant stakeholders (at local, national, regional and international) with the best available science by synthesizing information on national models and scenarios within and across countries.

Designing scenario protocols to collect scenario data will be an on-going exercise under this SWG. The SWG will coordinate with other SWGs based on the main objectives of the proposed study.

## **3. Purpose of the study**

In this first study, we would like to build on the work compiled in IPCC WGIII AR6 Chapter 4 (mitigation and development pathways in the near and medium term). We plan to evaluate the gap between the current policies being implemented and the measures required to reach the Net Zero targets at national level. The main objectives of the first exercise are to:

- i) consolidate modelling exercises taking place across international and national projects, activities explored under national and regional climate and energy modelling forums,
- ii) facilitate discussion of the national scenarios, and coordinate the scenario intercomparisons within and across countries or region,
- iii) align the Long-Term Strategies (LTS) and Net Zero (NZ) targets with short term policy measures (updated NDCs and implemented current policies).

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<sup>1</sup> Paris Climate Change Agreement 2015

<sup>2</sup> Emissions Gap Report 2022.

#### 4. Scenario Protocol

The scenario protocol provides a scenario framework on the set of scenarios that need to be submitted in this exercise. We plan to collect model meta data), scenario input/output variable and brief country narratives based on these scenarios. Based on the purpose, we plan to collect the three types of scenarios: a) Reference Scenario, b) Current Policy Scenario and c) Net Zero Scenario. However, we try to keep the flexibility in scenarios so that countries which could have similar scenarios that would be relevant to the scenarios below would be able to participate in this exercise.

- a. **Reference Scenario (Ref):** It is also known as baseline/business as usual scenario. This scenario assumes policies or measures implemented before 2015. Baseline scenarios are not intended to be predictions of the future, but rather counterfactual constructions that can serve to highlight the level of emissions that would occur without further policy effort<sup>3</sup>.
- b. **Current Policy Scenario (CPS):** Current policies are defined as *currently implemented policies* adopted by governments (through legislation) or non-binding targets backed by effective policy instruments and planned policies in the pipeline to be adopted.<sup>4</sup> The current policies include on-going climate, energy, economic and sectoral policies that impact not only the emissions but also primary energy demand of the system, and final energy consumption of enduse sectors. The current policies scenario describes emission projections for the period until 2030.
- c. **Country level Net Zero scenario (NZS):** As of October 2023, about 151 countries have declared net-zero covering 88% of global emissions, 92% of GDP and 89% of the population<sup>5</sup>. Here, each country modelling team can submit their version/s of how the country will reach its *Net-Zero* target. The NZ scenario could capture the planned policies<sup>6</sup> (including updated NDC), ratcheted implemented policies in addition to policies mentioned in each country's Long-Term Strategies (LTS) and/or Net Zero plans.  
The net zero timing is not limited to 2050 but can be flexible depending on national pledges or announcements. The GHG coverage of the net-zero condition is also flexible. You could only consider full GHG gases, total CO<sub>2</sub> or energy related CO<sub>2</sub> only. NDC can be updated version under Glasgow or outdated version based on Paris agreement.

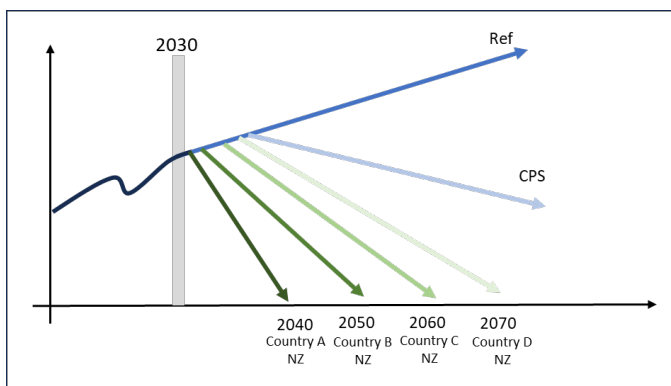


Figure 1: Illustrative pathways

<sup>3</sup> IPCC AR5 2014

<sup>4</sup> Emission Gap Report 2022

<sup>5</sup> Net Zero Tracker, assessed on October 31, 2023.

<sup>6</sup> Include climate targets, economy-wide climate, energy, economic, development and technology police, sectoral policies and so on.

## 5. Scenario Database

There will be an initial set of scenario variables shared with national modelling teams. The scenario data collection and vetting process ensure that the data collected is transparent, consistent, complete, and comparable.

The *compilation* of national models and scenarios data will be hosted on a Scenario Explorer by the International Institute for Applied Systems Analysis (IIASA) as a part of cooperation agreement with IAMC SWG on national scenarios. We will share the scenario database excel along with final scenario protocol shared with country teams.

For those who cannot transform the currently available scenario data into so-called IAMC template, please contact us. We will assist you with data processing.

The *vetting* of scenario process constitutes of verification and validation of model results in this study. This will include (not limited to) historical data validation (hindcasting), unit checks and clarification on issues in model results.

## 6. Model/scenario generation tool details:

Please share the initial model details [here](#).

Or you could scan the code.



## 7. Timeline

	Tasks	Deadline
1	Feedback on national scenario protocol version 0	December 15, 2023
2	Call for national scenarios based on finalized national scenario protocol	January 15, 2023
3	Short meeting on queries during submission	January 31, 2023
4	Initial deadline of scenarios	April 01, 2024
5	Feedback and discussion country modelling teams	April - May 2024
6	Final deadline of scenarios	June 30, 2024
7	First draft of the paper/s shared with co-authors for review and feedback	September 30, 2024
8	Submission of feedback by co-authors	October 15, 2024
9	Presentation of results at IAMC 2024	November 2024
10	Final drafts submitted to journal (tentative)	January 31, 2025

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