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Integrating Nuclear Energy into Climate Finance

A Framework for a Technology-Neutral, Sustainable and fit-for-purpose NCQG

As an observer organization to the UNFCCC, Generation Atomic is pleased to respond to the secretariat on calls for the views to the Eleventh Technical Expert Dialogue and Third Meeting under the Ad Hoc Work Programme on NCQG. Our recommendations, in consultation with industry experts, are based on TED10, the 2nd MAHWP and the updated inputs on the NCQG submitted on the 9th June 2024.

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Introduction

The fight against global temperature rise is the greatest economic challenge of our times. All technologies must be considered in light of their capabilities to sustain low carbon development in developing countries. Nuclear energy provides reliable and safe carbon-free firm power that is scalable–an imperative for the energy transition. Its ability to produce process heat also makes it attractive in decarbonizing hard-to-abate sectors. IPCC pathways toward 1.5°C include nuclear energy in scenarios most likely to meet the goals of the Paris Agreement.

Over 30 countries, predominantly Non-Annex II states, are at various stages of developing nuclear energy programs, underscoring the technology's critical role in the global energy transition. Nuclear energy was recognized by the outcome of the first global stocktake under the UAE consensus. Paragraph 28 of 1/CMA.5 asked states to accelerate development of low-emission technologies like nuclear. In addition to this, 25 states have pledged to triple their nuclear capacity by 2050 at COP28.

Given the growing demand for new power plants and life extensions of existing ones, the industry requires substantial capital investment. At the first Nuclear Energy Summit in Brussels this year, developing countries expressed that the most consistent challenge they faced was access to finance. Given the degree of investment required for nuclear projects and the complexity of securing private funding, unlocking new pathways to facilitate investment into the sector is essential to meet the climate commitment states have made in their NDCs and LTSs.

Climate financing mechanisms must be fully aligned with the outcome of the first Global Stocktake and avoid arbitrary barriers inconsistent with it. Accordingly, the new mechanisms should include parameters and specific provisions that allow for the financing of nuclear projects. A fit for purpose NCQG should support mitigation needs of developing countries and provide a new climate financing mechanisms inclusive of provisions for nuclear energy by aligning with the following:

Recommendations

Objectives (Preamble, Context, Principles)

References to Relevant Articles: The NCQG, as a result of Article 9, should also be linked to Article 2.1(c) of the Paris Agreement. These articles should align and reinforce each other, ensuring interoperability and coherence in climate finance strategies. Given the first Global Stocktake will influence the next round of national action plans that the NCQG will support, it should be fully aligned with the outcome of the GST. Therefore, the NCQG should support nuclear power.

National Climate Plans: As the NCQG is conceived under the Paris Agreement, it should emphasize the crucial role of implementing the framework setup within it, specifically on NDCs, NAPs and other relevant climate strategies. States with nuclear energy programs highlight nuclear energy in their NDCs and LTSs as a critical part of their mitigation efforts. Nuclear power plants are expressed under infrastructure and critical energy projects in NAPs of states with a nuclear energy program.

Inclusivity and Technology Neutrality: Climate finance should be defined in a way that is inclusive of all clean energy technologies and aligned with the GST outcome, without excluding or disadvantaging any specific options, such as nuclear. This approach ensures a level playing field for all technologies that contribute to climate mitigation and adaptation efforts.

Development and Climate Nexus: The NCQG should recognize the interdependencies between climate change and development objectives to promote climate actions that deliver sustainable development. Nuclear energy, which provides reliable, scalable, and carbon-free power and decarbonises industries, advances economic development while achieving significant emissions reductions.

A Multilayered Structure

Core of Public Finance: The NCQG should establish a baseline quantum of public finance for net-zero aligned pathways, particularly in the energy sector. This finance should support diverse clean energy technologies, including nuclear, to ensure a comprehensive approach to decarbonization.

Public finance to Mobilize Private Finance: Nuclear energy needs both public and private finance. Public finance may fund mitigation efforts by supporting mature or near-mature technologies and large infrastructure projects with future revenue streams. However, its main role should be to leverage private sector contribution by incentivizing and de-risking large investments and lowering the cost of capital. Equity and shared ownership models involving development banks, governments, and the private sector can significantly de-risk investments, especially in countries lacking access to mature private markets.

Thematic Sub-Goals: It should include specific thematic sub-goals of the Paris Agreement targets. This ensures a balanced distribution of climate finance, including mitigation, and provides clear indications of the financial needs and expected allocations under each sub-goal, offering predictability to parties and investors.

Financing Strategies

Innovative Financing Mechanisms: Explore innovative financing mechanisms such as green bonds, debt-for-climate swaps, and public-private partnerships to support nuclear energy projects. Examples include the Regulated Asset Base (RAB) model used for the Sizewell C project in the UK and the Mankala model in Finland, which have successfully attracted investments and reduced financial risks. Additionally, South Korea employs a model involving government-private sector collaboration, utilizing innovative financing mechanisms such as multi-country financing for projects like the Barakah plant in the UAE. This approach leverages joint procurement of business finance and government-backed loans.

Medium and Long-Term Timeframes: The NCQG should set medium-term (10 years) and long-term (25 years) targets, with optional interim reviews. This allows for alignment with national budget cycles and provides predictability for recipient countries. Nuclear energy projects typically have long construction times but their average lifespan can range from 40 to 60 years (or longer), outlasting many other forms of energy. They consistently reduce emissions throughout their lifespan, ensuring continuous emission reduction.

Disenablers

First-of-a-kind costs and Standardization: With the surge of interest of many Parties in Small Modular Reactors (SMR) for climate change mitigation, the nuclear energy industry is looking to enhance modularity and standardization that benefit from increased production volume and economies of scale. Given the complexity of the projects, the need to establish highly specialized supply chains and train a skilled workforce, the cost estimate for first of a kind (FOAK) nuclear power plants can be between 15–55% higher than subsequent plants of the same design. Public finance is needed to support this initial development cost differential and ultimately bring down the overall costs to deliver affordable low carbon energy.

Inclusion of Preliminary Costs: Climate finance should cover all early-stage costs for all climate technologies, such as feasibility studies, environmental impact assessments, and initial infrastructure development. This comprehensive inclusion ensures fair comparison and support for various technologies, accommodating their unique initial requirements.

Regulatory Agencies: The establishment of prerequisite national regulatory agencies for energy management, particularly for nuclear energy, should be classified as eligible for climate finance. These agencies are critical for ensuring the safe and effective deployment of nuclear technologies by providing oversight, safety regulations, and compliance enforcement.

Qualitative Elements

Opportunity Cost of Investments: Nuclear energy, compared to other technologies, uses fewer raw materials and less land which is a valuable attribute for recognizing the impact of a technology. It reduces dependency of countries' economies on raw material extraction. It is also one of the few low-carbon technologies that provides baseload power, which contributes to the flexibility and reliability of the energy system and is often not remunerated. When intermittency and efficiency are included in cost calculations, nuclear energy projects are competitive with renewables and other low cost mitigation technologies. While selecting mitigation projects, beyond simply upfront costs, a robust and well-rounded calculation of the impacts and outcomes of any project should be considered.

Access to Climate Finance: A fit for purpose NCQG should allow for small, medium as well as large scale projects that best meet the needs of developing countries. Therefore, it must establish a clear, structured, and transparent access to climate finance for large scale projects, ensuring that capital-intensive projects like nuclear energy, which bring large scale decarbonization, have the same right of access as small and medium-scale projects, recognizing the different time scale implications of projects of different scopes.

Capacity-building and tech transfer: Financing for technology transfer and capacity-building should be considered across all thematic areas. Established international organizations and bilateral forums like the IAEA and the 123 Agreements can be leveraged to build local capacities, foster innovation, and ensure that nuclear energy projects are implemented with the highest standards of safety and efficiency.

Just Transition: Phasing out coal is critical for reducing greenhouse gas (GHG) emissions and achieving climate targets. Initiatives like Project Phoenix provide valuable blueprints for coal-to-SMR power plant conversions that maintain local employment through comprehensive workforce retraining programs, ensuring that workers from the coal sectors are equipped with the skills needed for new roles in the nuclear energy sector. Coal-to-nuclear projects can accelerate the phase out of coal compared with other low carbon options by promoting economic resilience in transitioning communities. Nuclear power can deliver process heat for industry, desalination and district heating that can substitute coal-fired boilers in hard-to-abate sectors contributing to a reduction of both GHG and air pollution.

Promoting Human Capital: Investing in nuclear energy fosters the development of high-skilled jobs and enhances scientific and technical expertise. This investment supports a just transition by building technical capacity in countries with lower initial technical knowledge, bridging the gap between different levels of development, and promoting equitable growth

International Control and Labor Standards: The rigorous international controls and regulations in the nuclear industry reduce the risk of labor exploitation and ensure ethical practices throughout the supply chain. This contrasts with other industries where supply chains are less regulated, potentially leading to possibilities of exploitative labor practices .

Role of International Financial Institutions and Organizations

Enhancing Nuclear Projects: International financial institutions (IFIs) and multilateral development banks (MDBs) should support nuclear energy projects. This includes promoting joint ventures between countries to share the financial and technical risks of nuclear projects. These institutions can provide loan guarantees and other forms of support to de-risk projects and facilitate private sector investment.

Leveraging Existing Mechanisms: Climate finance mechanisms should integrate and leverage the expertise and resources of established international bodies, such as the IAEA, to create a cohesive and efficient approach to funding clean energy projects.

Measuring Outcomes

Transparency: Under the Enhanced Transparency Framework (ETF), tracking GHG emission is essential to ensuring accountability and transparency. Nuclear energy projects are already highly transparent and controlled, with predictable emissions reduction over their lifespans. Furthermore, strict oversight and monitoring by international organizations like the IAEA ensures transparency in operational activities, finance needs, and climate implications.

Comprehensive Reporting Systems: Integrate existing tracking systems, such as those of the Standing Committee on Finance (SCF) and the OECD, to provide a holistic view of climate finance. The SCF tracking system compiles data on climate finance flows from various sources, providing a comprehensive overview of financial commitments and disbursements. The OECD tracks development finance, including climate finance, through its Creditor Reporting System (CRS) which monitors financial flows, including grants, loans, and investments directed towards climate-related projects.

Metrics: It is important to establish clear, net-zero aligned and SDGs compliant metrics, not only for nuclear-related projects, but for all efforts in climate finance. The performance of the climate component should be measured, whenever possible, in GHG equivalents. Other metrics, such as the percentage of renewable energy in a grid, may not be entirely technology-neutral and could potentially shift focus towards actions that may not optimally decrease emissions.

Impact Assessment: When considering the development impact of a project, "total electricity generated electricity is not the sole metric necessary, as the electricity from a project should address community or state needs. For example, if a project generates non-dispatchable electricity, the costs and emissions incurred by the backup systems to provide continuous electricity must also be accounted for. Metrics based on actual electricity consumption should be given preference over installed capacity or generation.

Response to the UNFCCC secretariat on Discussion Topics for the Eleventh TED and Third MAHWP

As members of the nuclear energy community, we hope parties reach an agreement on the form and structure of the NCQG. We understand that consensus is not feasible at this early stage of negotiations. Thus, we urge parties to identify clear and distinct alternatives within the text as *options* for consideration, with clarification whether multiple options are feasible concurrently.

An ambitious NCQG depends not on a single specific aspect but on the harmonious interdependence of all the elements it encompasses. Some topics will benefit from a discussion at a later stage when clear options on structural elements are identified. Parties must establish a structured format for discussions that prioritizes initial agreement on foundational elements.