

Nationally Appropriate Mitigation Actions (NAMAs) in the Electricity Sector: The Case of Thailand

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Abstract

This paper analyzes Thailand's voluntary emission reduction commitments in the context of the country's power and energy development plans. It focuses on the power generation sector, which is the largest emitter of CO₂ in the country. First, the paper discusses Thailand's electricity sector including power demand forecasts and emission reduction targets as incorporated in the country's power development plans. Next, it compares the feasibility of the power demand forecast, including the fuel mix, under the energy efficiency increasing scenario with the business-as-usual scenario. A systems engineering optimization model is then developed to assess the country's energy situation taking into consideration several indicators such as energy supply mix, final energy consumption, CO₂ emissions, energy import and power supply costs. The analysis suggests that CO₂ mitigation targets are achievable, provided that Thailand can ensure the supply and proper use of the major energy resources, namely, natural gas and renewables. As the current domestic gas reserves will exhaust soon, the country needs to ensure the supply of gas either by imports or by discovering new reserves or by a combination of both. Additionally, to increase the share of renewable in power generation, Thailand needs to adopt proper policies through separate, sector-wise assessments of the needs/technical potential as well as cost-effectiveness of the renewable sources.

Key words: *Emission and Mitigation, Electricity Generation, Natural Gas, Renewable Energy, Energy Import, Thailand*

1.0 Introduction

In the context of the Copenhagen Accord followed by the Bali Action Plan (BAP), Nationally Appropriate Mitigation Actions (NAMAs) have become key instruments for negotiations concerning international climate impact mitigation. As a set of government-prioritized voluntary action proposals to the United Nations Framework Convention on Climate Change (UNFCCC) aimed at reducing or limiting Green House Gas (GHG) emissions, NAMAs are expected to be the principal vehicle for mitigation action in developing countries under a possible future climate agreement. NAMAs combine a set of actions that are necessary to facilitate the transition to low-carbon growth for different sectors of the economy, including but not limited to the energy sector. Such NAMAs by developing country Parties are proposed in the context of sustainable development supported and enabled by technology, financing, and capacity building, in a measurable, reportable, and verifiable (MRV) manner. Thus, the BAP proposes developing country mitigation actions subject to compliance with the provisions enunciated under paragraphs 4.3, 4.5, and 4.7 of the United Nations Framework Convention on Climate Change.

Since Bali, negotiations under the Ad Hoc Working Group on Long-term Cooperative Action (AWG-LCA) track have focused on detailing what exactly constitutes NAMAs. Although there are many proposals and ideas, these proposals remain conceptual in nature and are open to multiple interpretations. Nevertheless, the basic components of NAMAs include the nature and scope of NAMAs, the governing principles for NAMAs, functioning of NAMAs and finally measurement/monitoring, reporting and verification of the enabling support provided and the outcomes realized. This study focuses on the MRV issue which is considered to be contentious but inevitable in the context of achieving the voluntary national pledges made by Thailand.