Evaluating of the Mass Transit Role and Its Effect on Greenhouse Gas Mitigation: The case of Bangkok

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Abstract

Since the nationally appropriate mitigation actions (NAMA) pledge during COP20, several national level greenhouse gas mitigation policies and measures have been implemented, monitored, and tracked to fulfill national target. This paper investigates the role of rail-based mass transit in urban transportation system in Bangkok in terms of energy reduction and greenhouse gas (GHG) mitigation. The assessment of the three-line mass transit and how it affects to energy consumption compared to the baseline have been presented. The measuring, reporting, and verification (MRV) methodology and process including the applicable coefficients and emission factors are also developed. From the results, we found that 76.7 thousand tonnes of CO₂ have been reduced from those three-line mass transit in Bangkok, which is lower than the national plan target. The study revealed that there are many factors impacted to the GHG mitigation; i.e. (i) less passenger from operating inefficiency, (ii) lack of integrated intra-city package with other transport modes, and (iii) land use policy reform. Policy implications for improving the mass transit efficiency and cost effective are also raised.