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IMPACT OF CAPITAL RATIONING ON THE ADOPTION OF CLIMATE FRIENDLY ENERGY TECHNOLOGIES IN DEVELOPING COUNTRIES

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This paper examines the impact of capital rationing on the adoption by developing countries of energy technologies that contribute to the mitigation of Greenhouse gas emission reductions in the medium term. The analysis uses the global ETSAP-TIAM model (TIMES Integrated Assessment Model) to simulate the future investments in electricity producing technologies in large developing countries such as India and China under various conditions of capital rationing and carbon pricing. The experiments are conducted under the following conditions: a) capital destined to the energy sector is rationed (with varying degree of severity) in developing countries, and b) the DC's do/do not participate in a global GHG emission trading program --with/without a reduction commitment on their part. The runs without carbon pricing examine the degree to which the adoption of GHG friendly technologies would occur even in the absence of a carbon reduction commitment or emission-rights market. The runs with carbon pricing evaluate the potential intensification and acceleration of technological adoption when developing countries do participate in a global emission trading scheme --with or without a reduction commitment on their part. This research constitutes a preliminary analysis of technology spillovers under the TOCSIN project.