PROJECTION OF ROAD TRANSPORT ENERGY DEMAND IN APEC ECONOMIES USING A SYSTEM DYNAMICS VEHICLE FLEET MODEL: A THAILAND CASE STUDY

The Asia Pacific Energy Research Centre (APERC) prepares a new version of the *APEC Energy Demand and Supply Outlook* for Asia-Pacific Economic Cooperation (APEC) members every 2 or 3 years. The transport sector accounts for more than one-fourth of total APEC final energy consumption (APERC, 2013). This paper describes a vehicle fleet model that is being prepared for estimating energy demand in the transport sector for the next *Outlook*, which is expected to be published in 2015. The model uses a system dynamics approach, implemented in the STELLA modeling software. This paper will briefly illustrate the framework of the model, including explanations of key data, assumptions, validations, and simulations. To do so, a single APEC economy-Thailand-is adopted as a case study to demonstrate how to build a reference (REF) scenario and an alternative (ALT) scenario. Policy analyses based-on comparisons of the model results between the REF and ALT scenarios, including vehicle stocks by vehicle technology, final energy demand by fuel type, and carbon dioxide (CO2) emissions, are also examined.