

## **Indonesian Energy Climate Change Research Using AIM: An Update**

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Indonesia energy team is involved in the development of AIM in three models: AIM - ExSS Snapshot, AIM - End-Use and AIM – CGE. This paper presents the current state of Indonesia energy researches using AIM. ExSS Snapshot model has been employed to develop three models: (i) Low Carbon Development Path of Energy Sector Toward 2050 (publication); (ii) Low Carbon Development of Power Sector (to evaluate the impact of coal addition to power expansion plan by the state electric utility, submitted to National Council for Climate Change), (iii) Low Carbon Development in DKI Jakarta (submitted to DKI Jakarta Government and is being used in the re-evaluation of Jakarta's mitigation plan). Result of ExSS snapshot is used as the basis of Indonesia AIM End-Use modeling.

Results of energy projection using AIM-ExSS Snapshot show that under business as usual scenario Indonesia energy demand in 2050 will reach around 617 Mtoe. The majority of the demand is accounted by industry sector (around 60%), followed by transport sector (25%) and the remaining 15% is accounted by commercial and building sector.

AIM-End Use was used to evaluate emission reductions (compared to business as usual scenario) in the power sector, industry, transport and residential sectors. Under CM1 (based on National Energy Policy Scenario and energy efficiency measures) the followings emission reductions in 2050 are resulted:

Power sector – 50%, Transport sector – 20%, Cement industry – 40% and Iron/Steel industry – 40%. The End Use model gives mitigation cost ranging from – 200 US\$/tonCO<sub>2</sub> to around 50 US\$/tonCO<sub>2</sub>.

The AIM CGE model was used to evaluate emission reduction under Indonesian INDC scenario. Results of the model shows that INDC scenario will have reduction of GHG emission intensity to GDP ranging from 30% (in 2050) to 70% (in 2025). The model also shows that INDC scenario will give low (insignificant) reduction of Indonesia GDP.

Keywords: AIM ExSS, AIM End Use, AIM CGE, Indonesia, DKI Jakarta, energy sector, current status