

EXECUTIVE SUMMARY

Responding to the Cebu Declaration of the leaders of the East Asia Summit (EAS) countries, Japan proposed to undertake a study of the energy savings and CO₂ emission reduction potential in the EAS region. The study would provide insights to national energy ministers for establishing goals and action plans to improve energy efficiency in their respective countries. The first study was undertaken in 2007 by the Working Group (WG) for Analysis of Energy Saving Potential in East Asia. The WG reconvened in 2008, 2009 and 2010 to update and incorporate more recent information and estimation procedures such as energy saving target and action plans reported at EMM2, EMM3, and EMM4.

The study examined two key scenarios up to 2030, a Business-As-Usual (BAU) scenario which reflected each country's current goals and action plans, and an Alternative Policy Scenario (APS), which included additional goals and action plans currently under consideration in each country. The focus of the study is on analysing the additional energy savings that might be achieved through the goals and action plans of individual countries, above and beyond BAU. The additional savings were measured as the difference between the BAU and APS scenarios.

Each scenario was modelled for each country by the members using their national models or by the Institute for Energy Economics, Japan (IEEJ) model that was used in the preparation of IEEJ's Asia/World Energy Outlook. The Working Group composed of experts from each EAS country. Some of the members developed their national energy outlook and the remaining members supplied projections of key socio-economic variables, as well as energy saving plans to IEEJ for developing their energy outlook. These input variables suggest that rapid growth in population, GDP, vehicle ownership, and access to electricity will create a huge 'headwind' that will tend to work against efforts to limit energy consumption and CO₂ emissions in the EAS region. However, it is important to note that increased consumption of energy services is fundamental for achieving social and economic development.

Modelling results show that the EAS region's final energy consumption in the BAU case is projected to increase from 1,943 Mtoe in 2005 to 5,334 Mtoe in 2030, an increase of 4.1 percent per year. In the APS case, final energy consumption is projected to rise to 4,528 Mtoe in 2030, 15.1 percent less than in the BAU case. CO₂ emissions in the BAU case are projected to increase from 2,539 Mt-C in 2005 to 6,812 Mt-C in 2030, implying an annual growth rate of 4.0 percent. In the APS case, CO₂ emissions are projected to be 5,106 Mt-C in 2030, 25 percent lower than in the BAU case.

While the emission reductions under the APS are significant, CO₂ emissions in the APS case in 2030 will still be above 2005 levels and far above 1990 levels. Scientific evidence suggests these reductions will not be adequate to prevent severe climate change impacts.

In order to support the analysis on energy saving potential, four new research projects started in 2010 in addition to those started in 2009. These projects include the pilot survey of residential end-use energy consumption in participating ASEAN countries, bottom-up analysis of specific sectors in selected countries and the implementation of related studies commissioned by Japan.

The outcome of the pilot survey suggests that residential end-use energy consumption can be determined. These end-use data could be used to formulate energy saving goals and action plan in the sector. Likewise, the outcomes of the other projects indicated that saving potential existed in the sectors where the analyses were carried out.

With reference to the above findings, the following are recommended:

- Detailed action plans outlining how these energy savings can be achieved should be developed. The range of policy options could include improvements in energy efficiency, enhanced uptake of low emissions technologies, government funding, energy conservation regulations, bilateral offset mechanism, energy management systems, energy efficiency standards and labelling, long term energy efficiency goals or plans, education and communication campaigns, performance and emission standards, renewable energy portfolio standards (RPS), enhanced research and development funding, and explicit emission pricing instruments such as carbon taxes and emissions trading.
- International collaboration on technology development and transfer should be enhanced for achieving future gains.
- National end-use energy consumption surveys in EAS countries where such data are insufficient should be conducted.
- More aggressive saving goals, advanced technologies to reduce CO₂ emissions directly, such as CCS technologies, and enhanced uptake of lower emission fuels to further reduce the CO₂ emission should be adopted.
- Analysis should be expanded to include financial and economic aspects of energy saving potential.
- The studies on clean coal technology, institutional barriers to technology transfer for CO₂ mitigation and survey analysis of the road transport sector for CO₂ emission reduction should be continued.