

## **Impact Analysis of Energy Saving Goals and Action Plans in East Asian Summit Region<sup>1</sup>**

By Shigeru Kimura and Edito Barcelona, EDMC/IEEJ

***Abstract:** An analysis of the impact of energy saving goals and action plans of EAS countries up to 2030 was carried out by a working group comprising of members from each of the 16 countries. Results show that final energy consumption in EAS could be reduced by as much as 17% relative to business-as-usual scenario. Primary energy consumption could also be reduced by 20% resulting to a 29% CO2 emission avoidance.*

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<sup>1</sup> This report is an excerpt from the ERIA Research Project Report 2007 No. 6-1: Analysis of Energy Saving Potential in East Asia published by the IDE-JETRO in 2008.

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The leaders of the East Asia Summit (EAS) countries, on the occasion of the Second East Asia Summit, *recognized the limited global reserve of fossil energy, the unstable world oil prices, the worsening problems of environment and health and the urgent need to address the global warming and climate change. They also recognized the fact that energy demand in the region is growing rapidly and will necessitate large-scale investment in the coming decades*<sup>2</sup>. This is embodied in the Cebu Declaration on East Asian Energy Security that was signed by all the leaders on 15 January 2007 and is now well-known as the Cebu Declaration. The EAS region comprise the 10 member countries of the Association of Southeast Asian Nations (ASEAN) namely: Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam, as well as and ASEAN's 6 dialog partners: Australia, China, India, Japan, Korea and New Zealand.

Responding to the Cebu Declaration, Japan proposed to undertake a study of the energy savings and CO<sub>2</sub> emission reduction potential in the EAS region to the Energy Cooperation Task Force (ECTF) that was organized by the EAS energy leaders. The study would provide insight to national energy ministers for establishing goals and action plans to improve energy efficiency in their respective countries as part of countermeasures identified to confront the twin problems of energy supply security and climate change.

A working group (WG) was organized by Japan under the Economic Research Institute for ASEAN and East Asia (ERIA), with each country appointing a member to the WG, to conduct the study. The methodology of the study was to forecast future energy

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<sup>2</sup> ASEAN Secretariat, 2007, Cebu Declaration on East Asian Energy Security, Cebu Philippines, <http://www.aseansec.org/19319.htm>.

demand to 2030 wherein two cases over the time period were examined, a Business-As-Usual (BAU) case reflecting each country's current goals and action plans, and an Alternative Policy Scenario (APS), including 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 and CO<sub>2</sub> emission reduction may be measured as the difference between the BAU and APS cases.

Each scenario was modelled for each country by the Institute for Energy Economics, Japan (IEEJ) using the same model that was used in the preparation of IEEJ's *Asia/World Energy Outlook 2007*. A Working Group composed of experts from each EAS country supplied projections of key socio-economic variables, as well as energy saving plans, for each country. 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 CO<sub>2</sub> emissions in the EAS region.

Modelling results show that EAS region final energy consumption in the BAU case is projected to increase from 1,915 Mtoe in 2005 to 4,555 Mtoe in 2030, an average increase of 3.5 percent per year. In the APS case, final energy consumption is projected to rise to 3,776 Mtoe in 2030, 17 percent less than in the BAU case. CO<sub>2</sub> emissions in the BAU case are projected to increase from 2,652 Mt-C in 2005 to 5,765 Mt-C in 2030, implying an average annual growth rate of 3.2 percent. In the APS case, CO<sub>2</sub> emissions are projected to be 4,082 Mt-C in 2030, 29 percent lower than in the BAU case. The figure below gives a graphical presentation of these results.

While the emission reductions under the APS are significant, CO<sub>2</sub> emissions in the APS case in 2030 will still be above 2005 levels and far above 1990 levels. The scientific evidence suggests these reductions will not be adequate to prevent severe climate change impacts.

Yet further additional policy development will be needed even to achieve savings at the

level of the APS case. While all of the EAS countries are actively developing and implementing Energy Efficiency and Conservation (EEC) goals and action plans, progress so far varies widely. Some countries are quite advanced in their efforts, while others are just getting started. A number of EAS countries have established EEC goals, but as yet lack concrete action plans for achieving them. It is recommended that EAS country leaders work individually and cooperatively to assure implementation of their EEC goals through the development of concrete action plans.

On the other hand, the APS case was based on the current EEC goals and action plans of each country, so it does not take into account additional policy and technology options for further actions. Given the preliminary stage of EEC policy development in many countries, it is likely that there are additional measures that could achieve further energy savings and reductions in CO<sub>2</sub> emissions. It is recommended that EAS country leaders work individually and cooperatively to facilitate exploration of further EEC policy and technology options in each country.

Currently, the analysis is being revised by the WG to take into account the preliminary energy saving goals and action plans of the 16 EAS countries submitted to ECTF in August 2008. The report of this analysis will be released by July 2009.

#### Estimated Reduction in TPES, TFEC and CO<sub>2</sub> Emission from Energy Saving Goals

