Evaluating the Supply, Efficiency and Environmental aspects of ASEAN countries Energy Security: Indonesia

Yudha Prambudia, Masaru Nakano
Graduate School of System Design and Management
Keio University, Japan

Abstract

Overview
The Cebu declaration put forward the importance of energy security and has laid a common perspective towards energy security for ASEAN. However, ASEAN members energy situation are diverse and they are at different development stage. Despite the common perspective, policies to improve energy security are likely to be guided by different goals. Therefore, national perspectives are essential to consider in the awareness of regional context.

Indonesia is among ASEAN countries with rapid economic development. With the large population supporting its domestic market and high GDP growth, Indonesia's economic development is confidently growing. Alongside economic growth, Indonesia's energy consumption is continuously growing as well. On the other hand, Indonesia's supply of energy is facing some issues. Oil production has been declining, while alternatives to oil, such as gas and coal are apprehended by export contracts. In addition, coal brought significant environmental concern.

This paper presents an evaluation of future energy security of Indonesia from its national perspective with regards to ASEAN's Cebu declaration perspective. Policies recently introduced related to energy security are analyzed by conducting policy simulation. It is found that Indonesia's policy is contributing largely to its future energy security in terms of efficiency and environmental aspect, but only to a certain extent in term of supply aspect.

Method
A model is designed and developed for energy security evaluation using System dynamic approach. The model is broadly segregated into four sectors namely; energy, technology, socio-economy and environment. Interplays between the sectors are represented in the model as feedback loops. The model is implemented to Indonesia. Indonesia's policy scenarios are developed for model simulations.

Expected Results
The dynamics of Indonesia's energy security from 2009 to 2025 is presented. Impacts of policies towards energy security are analyzed. Cebu declaration and national perspective towards energy security are discussed.

References

1. ASEAN, Cebu Declaraion on East Asia energy security, 2007. www.aseansec.org (accessed, 06 March 11)
2. BAPPENAS and Biro Pusat Statistik – BPS, (2005), *Proyeksi Penduduk 2000-2025*, Badan Perencanaan Pembangunan Nasional – Jakarta. Indonesia.
3. BPS, (2011). Pertumbuhan Ekonomi Indonesia. Berita Resmi Statistik No. 12/02/Th.XIV. Badan Pusat Statistik - Jakarta. Indonesia
4. BPPT, (2010) Outlook Energy Indonesia 2010. Badan Pengkajian and Penerapan Teknologi-BPPT-Press Jakarta. Indonesia.
5. Chester L., (2010). "Conceptualising energy security and making explicit its polysemic nature". *Energy Policy* 38 (2).
6. EIA (2010) Total Carbon Dioxide Emissions from the Consumption of Energy. 2010. Energy Information Administration: www.eia.gov, (accessed 24 February 2011).
7. IEA. (2006). Energy Technology Perspectives 2006: Scenarios and Strategies to 2050. Organisation for Economic Co-operation and Development and International Energy Agency, Paris.
8. KESDM, (2006), Blue Print Pengelolaan Energi Nasional 2006-2010. Kementrian Energi dan Sumber Daya Mineral Jakarta.
9. KESDM, (2010), Persentase Minimal Penjualan Batubara Dalam Negeri Tahun 2011 Kementrian Energi dan Sumber Daya Mineral. www.esdm.go.id, (accessed 6 March 2011).
10. KESDM, (2011), Kontrak Gas Domestik 2011 Mencapai 57 Persen. Kementrian Energi dan Sumber Daya Mineral www.esdm.go.id, (accessed 6 March 2011).
11. Republika, (2011). Jumlah Penduduk Indonesia Bisa Menggeser Amerika, www.republika.co.id. (accessed 10 March 2011).
12. Sovacool, B.K., (2010). "Evaluating energy security in the Asia pacific: Towards a more comprehensive approach". *Energy Policy*.
13. Sovacool, B. K., Brown, M.A., (2009), Competing Dimensions of Energy Security: An International Perspective. Working Paper #45, Ivan Allen College School of Public Policy, Georgia Institute of Technology, Atlanta.
14. UN. (2002). International Standard Industrial Classification of All Economic Activities (ISIC) Revision 3.1. United Nations, New York.
15. UNIDO. (2005). Capability Building For Catching-Up: Historical, Empirical And Policy Dimensions. Industrial Development Report. United Nations Industrial Development Organization - United Nations
16. Vivoda V. (2010) Evaluating energy security in Asia-Pacific: a novel methodological approach. Energy Policy (38).
17. Yusuf A.A., Resosudarmo B., (2007), "On the Distributional Effect of Carbon Tax in Developing Countries: The Case of Indonesia", Working Paper in Economics and Development Studies no. 20075, Padjadjaran University. Bandung.