

# Chapter 1

## Introduction

**Study on Asia Potential of Biofuel Market Working Group**

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# CHAPTER 1

## Introduction

Biofuels began to be produced in the late 19<sup>th</sup> century and until the 1940s, biofuels were seen as viable transport fuels, but falling fossil fuel prices stopped their further development<sup>1</sup>. Interest in commercial production of biofuels for transport rose again in the mid-1970s, when ethanol began to be produced from sugarcane in Brazil and then from corn in the United States.

Nowadays, the United States, Europe, and Brazil are the leading players in the world biofuels market. According to the International Energy Agency (IEA)<sup>2</sup>, from 2000 to 2010 world biofuels consumption increased from 10.8 million ton oil equivalent (MTOE) to 50.6 MTOE. In 2010, biofuels provided about 2.4% of world's total transport fuel demand. The United States and Brazil together accounted for 82.9% of the global bio-gasoline consumption in 2010. Europe leads the use of biodiesel, and 67.5% of world biodiesel was consumed in OECD Europe in 2010. The Asia and the Pacific region accounted for only 5.2% of world total biofuels production in 2010 and 4.9% of biofuels use. Within the region, China and India are the biggest two players, with 43.1% of the regions production and 48.4% of consumption in 2010 attributed to the two members.

Driven by energy security concerns, coupled with the desire to sustain the agricultural sector and revitalise the rural economy<sup>3</sup>, most Asian countries<sup>4</sup> are

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<sup>1</sup> IEA. 2011. *Technology Roadmap Biofuels for Transport*.

<sup>2</sup> IEA World Energy Balances and Statistics 2012

<sup>3</sup> IEA. 2011. *Technology Roadmap Biofuels for Transport*.

<sup>4</sup> ASEAN countries, China, India, Australia, Japan, New Zealand, and South Korea

showing increasing interests in biofuel production and utilization. However, Asian countries vary greatly in biofuel feedstock resources and the scale of biofuel market. For example, Indonesia and Malaysia, as the world two largest palm oil (from which biodiesel can be produced) producers and exporters, have huge potential of biodiesel production. However, there are very few bioethanol productions in the two countries. On the other hand, Thailand has abundant bioethanol production potential and a relatively large domestic market. But the country's potential for biodiesel production is limited (only a limited area in south Thailand has palm plantation). Therefore, a regional integrated market for biofuel trade cross countries is supposed to optimize the biofuel supply and demand in the region.

Built on this background, under the support and endorsement of the Economic Research Institute for ASEAN and East Asia (ERIA) a Working Group was established in 2011 to study Asian Potential of Biofuel Market. The WG is comprised of biofuel policy makers from Indonesia, Malaysia, the Philippines, and Thailand as well as the Institute of Energy Economics, Japan working as the coordinator.

The first phase of the WG's study was completed in June, 2012. In the WG's first phase study, information on the development status of biofuel in the 4 ASEAN countries was collected and analyzed, based on which the 4 countries's future market scale (which is demand) and supply potential of biofuels were estimated. The analysis and discussions at WG meetings led to the finding that given their differences in geographical, social, and economic characteristics coupled with different biofuel policies the 4 countries vary a lot in bioethanol and biodiesel supply potentials and future demands. The projection results suggested that countries with large supply potential in bioethanol or biodiesel not necessarily had big domestic

markets in the future and countries that were expected to have a large future demands for bioethanol or biodiesel might not be with sufficient supply potential. This implicated that a regional integrated biofuel market had its rational to be formed.

The second phase of the WG's study started from the summer of 2012. The scope of the second phase was expanded from 4 countries to 16 countries that include the 10 ASEAN countries, China, India, Australia, Japan, New Zealand, and South Korea. Moreover, issues with regional market integration were given deeper and more detailed analysis.

The outcomes of the second phase of the WG's study are summarized in this report, which is structured as follows: Chapter 1 comprises the status of biofuel development and projection and estimation of future biofuel demand and supply potential in each of the 16 countries; The methodology for demand and supply projection and the analysis of the aggregation of the results are put in Chapter 2; Based on the projection results, the potential of the region's biofuel market will be analyzed and discussed in Chapter 3.