EU's Renewable Energy Directive: Possible Implications on Malaysian Palm Oil Trade

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ABSTRACT

Concerns about high oil prices, energy security and increasing import costs have encouraged the development of biofuel programmes worldwide. Brazil, the European Union (EU) and USA are among the countries that have launched significant biofuel programmes as a means of reducing their dependence on imported oil. In Asia, since 2006, biofuel policies have been considered as they have impact on energy security, employment and income. However, with countries pursuing various programmes on biofuel, questions of sustainability of feedstocks, deforestation and competition with food uses have led to stricter rules and regulations being drafted in the importing countries, these also affecting the vegetable oils trade. This article attempts to assess the new EU's Renewable Energy Directive and their possible implications on the vegetable oils trade, especially that of palm oil.

INTRODUCTION

Biofuel programmes have been initiated globally with the aims of reducing dependence on imported fossil fuels, creating employment as well as reducing greenhouse gas (GHG) emissions. The European Union (EU) started to develop its own biofuel policy in 2001, and published the Biofuels Directive in 2003 based on fuel security, agricultural support and GHG reductions. However, in view of increasing global demand for biofuel, questions arose on the environmental impact from GHG emissions as well as sustainability issues of biofuel production. As a result, in January 2008, the EU came up with a proposal called the Renewable Energy Directive (RED) to further promote the use of energy from renewable sources for its 27 member countries. This is to harmonize the regulations, taking into consideration sustainability criteria and GHG reduction targets for biofuels. Prior to this, several EU member countries such as Germany and the United Kingdom had developed their own biofuel regulations and sustainability criteria.

THE EU POLICY ON BIOFUEL

Historically, the EU's Biofuels Directive dated 2003 had set an indicative target of 5.75% usage by 2010 for all EU member countries. Although such targets were not mandatory, the EU Governments were required to develop plans to meet them. However, only limited progress was achieved. As part of

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its new Energy Policy of Europe announced in January 2007, the European Commission (EC) was committed to encouraging the production and use of biofuels by proposing a binding minimum target of using 10% renewable energy sources for transportation by 2020. By 2008, the Heads of State no longer gave explicit support to the biofuels target and reiterated the importance of ensuring sustainability of biofuels. On 23 January 2008, the EC unveiled a draft of the RED which promote the use of energy from renewable sources, but also included sustainability criteria. The draft was also aimed at harmonizing the biofuel regulations of the various member countries.

The approved Directive maintain the proposals put forward by the EC on 23 January 2008. A mandatory 10% target for transportation using fuels such as biofuels, electricity and hydrogen is also included in the renewable energy increase. This new target replaces the voluntary 5.75% target by 2010, which was first established in 2003 and implemented by individual member countries through a variety of policies.

Biofuel will be taken into consideration for the purposes of achieving national targets, or for complying with renewable energy obligations, or being eligible for financial support, only if they fulfill the sustainability criteria set out in the proposed Directive (paragraphs 2-5 in Article 15). The proposal lists several sustainability criteria, which can have an impact on palm-based biodiesel as well as other vegetable oil-based biodiesel/ biofuel. The criteria are stated below:

- biofuel and other bioliquid production should be environmentally sustainable. The EU will not take into account biofuels derived from crops grown on land with high biodiversity such as primary forest, areas designated by law or a relevant authority for nature protection purposes, areas for the protection of rare, threatened or endangered ecosystems, grasslands, land with high carbon stock and peatland in or after January 2008;
- in line with Article 15 (2) of the proposed Directive, the GHG emission savings from the use of biofuels and other bioliquids shall be at least 35% (compared with fossil fuels);
- a Mass Balance System is to be used to verify compliance with the environmental sustainability criteria as set out in the proposal. Biofuels and other bioliquids fulfilling the sustainability criteria can be identified and rewarded with a premium in the market; and
- the GHG emission savings from the use of biofuel and other bioliquids should be calculated based on the formulae set out in the proposal. The proposal contains a set of technical provisions, which will determine the energy content assigned to a particular biofuel depending on the type of raw material, specifications for blending with biodiesel and default values for GHG emission savings.

While the proposed Directive is still being negotiated between the EC, European Parliament and European Council, the European Biodiesel Board (EBB), meanwhile, is of the opinion that this proposed Directive will eventually confirm biofuels as a major tool for 'greening' the transport sector and mitigating climate change. It will also secure the industry's commitment to sustainable production.

THE EU BIOFUEL SITUATION

Biodiesel is the most important biofuel in the EU, representing almost 80% of biofuel consumption. Bioethanol accounts for the remaining 20%. The EU is by far the biggest producer of biodiesel in the world. The reason for the big share of biodiesel is that the majority of the cars in the EU are diesel engine cars, and as such, there is a diesel deficit. According to EBB, total EU production of biodiesel has increased by 16.8% to 5.7 million tonnes in 2007, compared to 4.9 million tonnes in 2006, arising from good profits in the biodiesel sector in 2005 and 2006. The largest biodiesel producer in 2007 was Germany, which produced 2.9 million tonnes, followed by France with 872 000 t and Italy with 363 000 t (*Table 1*).

The most important feedstock for EU biodiesel is rapeseed oil as it is domestically produced, comparatively cheap, and there are only minor problems with the performance of rape methyl esters in diesel engines. The current trend and legislation will set the momentum for greater biodiesel production and consumption in the EU. Furthermore, biodiesel will contribute to cutting down GHG emissions, reducing oil import bills and relieving the structural diesel deficit of EU fuel markets. In order to stimulate biodiesel production and consumption, most EU member states have put in place supportive legislative framework ranging from tax incentives to mandatory targets. Favourable taxation systems present very strong incentives for biofuel production. Different EU member states have different taxation systems which stimulate the development of biofuels. Germany has been a pioneer in using tax incentives to promote the use of biofuels. This is one of the reasons why biodiesel has grown very significantly in Germany. However, for the past few years, member countries like Germany and France have decided to gradually reduce the fuel tax reductions/tax incentives given to biodiesel producers because of their governments' reduced income and rising fossil fuel prices (especially in 2007) which make biofuel less expensive in relative terms. In addition, the prices of agricultural products have reached levels that no longer justify tax exemptions to help farmers find markets for their production.

There will be an increasing demand and new market opportunities for biodiesel that Malaysia can exploit. The EU will have to at least double its rapeseed oil production to meet the predicted biodiesel development, if they continue to use mainly rapeseed oil. The alternative is to import substantial quantities of rapeseed into the EU or to consider other vegetable oils, such as soyabean oil, sunflower oil and palm oil. Malaysia should take this opportunity to offer biodiesel made from palm oil. As the choice of vegetable oil depends on the cost of production and reliability of supply, palm oil could be promoted as the preferred choice, instead of EU subsidizing the production of rapeseed oil for its biodiesel needs. According to the EU Oil and Proteinmeal Industry (FEDIOL), palm oil could supply up to 20% (or 300 000-350 000 t of additional palm oil imports from Malaysia or Indonesia) of Europe's biodiesel needs by 2010. The Biofuels Progress Report released on 10 January 2007 gives a favourable view on the roles and potentials for imported feedstocks for biofuels production. The Report states that a product mix that includes domestically produced biofuels as well as imports from a variety of regions will contribute more than one that relies entirely on the lowest cost producers (*i.e.*, Brazil for sugar-cane, Malaysia and Indonesia for palm oil). The Report also disputes the claim that Europe's consumption of biodiesel has caused the deforestation and destruction of natural habitats in Indonesia and Malaysia. The Report indicates that insignificant amounts of palm oil have been used in biodiesel production – an estimated volume of 30 000 t in 2005 – compared to global palm oil production which grew by nearly 10 million tonnes between 2001/2002 and 2005/2006. Imports of palm oil by the EU have been driven by the food market and not the biofuel market.

TABLE 1. THE EUROPEAN UNION (EU)'S CAPACITY AND PRODUCTION OF BIODIESEL IN 2007

Country	Production (x 1000 t)	Capacity (x 1000 t)
Germany	2 890	4 361
France	872	780
Italy	363	1 366
Austria	267	326
Portugal	175	246
Spain	168	508
Belgium	166	335
United Kingdom	150	657
Greece	100	440
Netherlands	85	115
Others	477	1 155
Total	5 713	10 289

Source: European Biodiesel Board (EBB).

MALAYSIAN PALM OIL EXPORTS TO THE EU

In general, Malaysia is the main exporter of oil palm products to the EU. According to *Oil World* statistics, in 2007, Malaysia accounted for 46.7% of total palm oil exports to the EU, followed by Indonesia with 37.6% and other countries 15.8%. In 2008, the EU was the second largest importer of Malaysian palm oil after P R China. Compared to soyabean and rapeseed oils, palm oil has made the most significant inroads into EU's vegetable oils and fats consumption. Over the years, despite its own domestic production of oils and fats, the EU's imports of palm oil have continued to increase steadily. However, in 2007, intake of palm oil decreased by 20.2% (or 523 062 t) from 2.59 million tonnes recorded in 2006. In 2008, intake of palm oil decreased marginally by 0.5% to 2.05 million tonnes (*Table* 2). The high price of palm oil during the first six months of 2008 was one of the main factors for the slightly reduced uptake of Malaysian palm oil, and imports recovered by the second half of 2008 due to the competitive price of palm oil vis-à-vis other competing oils such as soyabean oil and rapeseed oil. In Europe, the high prices of crude palm oil (CPO) are affecting the demand in the food and the non-food sectors. The impact of high price is even more pronounced in

TABLE 2. MALAYSIAN PALM OIL EXPORTS TO THE EUROPEAN UNION (EU) (million tonnes)

2004	% increase	2005	% increase	2006	% increase	2007	% increase	2008	% increase
1.97	15.9%	2.27	15.6%	2.59	13.8%	2.06	- 20.2%	2.05	- 0.5%

Note: EU 25 – 10 new member countries, effective May 2004.
EU 27 – 2 new member countries, effective January 2007.
Source: *Malaysian Oil Palm Statistics* (2004-2008).

the non-food sector, particularly the biofuels industry that has been viewed as having a high growth potential during the past two years. The prices of vegetable oils have reached levels at which their use in the energy sector has become rather unprofitable.

In 2008, the major markets for Malaysian palm oil in the EU were the Netherlands (1.3 million tonnes), Italy (153 681 t), Spain (145 502 t), Denmark (126 318 t) and Germany (118 553 t). Palm oil destined for the Netherlands is also trans-shipped or re-exported to other countries in Europe.

The EU is also a market for other Malaysian palm-based products. In 2008, the country imported 124 666 t of palm kernel oil, 609 259 t oleochemical products, 37 557 t of finished products and 1.3 million tonnes of palm kernel cake. Since 2006, the EU has imported biodiesel/palm methyl ester directly from Malaysia. In 2006 and 2007, a total of 12 598 t and 24 696 t of biodiesel and palm methyl ester, respectively, were imported by the EU. In 2008, imports continued to increase to 70 273 t (*Table 3*). Consumption of biodiesel/palm methyl ester is expected to increase further in the near future.

POSSIBLE IMPACTS TO THE MALAYSIAN PALM OIL TRADE

GHG Emission Savings

The Directive specify that biofuels that are used to reach the 10% target in transportation must comply with sustainability criteria (as mentioned earlier in this article, such as GHG emission savings as well as protection of environment). Biofuels that do not comply with these criteria are not illegal, but they do not count towards the 10% target. According to USDA's report (2008), the GHG emission savings set at 35% is not a scientific value but a political number as the EU does not explain the source of the data. Although the proposed Directive do not discriminate against biodiesel derived from palm oil compared to other vegetable oil-based biodiesel (for example, those derived from soyabean oil and rapeseed oil), the sustainability criteria set out in the proposal would probably have the biggest impact on growers of oil palm in countries like Malaysia and Indonesia. Some oil palm land developed in Southeast Asia will be blocked by the provisions of the proposed Directive, which state that biofuel should not be sourced from land with high biodiversity, peatland, having labour issues, *etc.*, thus, making it much harder to plant on recently deforested land or to export biofuel which cause significant amounts of GHG to be released in the production process. While the EU has the right to establish its own comprehensive and effective biofuel sustainability criteria, at the same time it is imperative that the EU ensures that its sustainability scheme/criteria do not discriminate against other producers of biofuels (such as Malaysia and Indonesia), and that the criteria used are science-based, verifiable and WTO-compatible.

According to the Malaysian Palm Oil Council (MPOC), apart from the cradle-to-grave Life Cycle Assessment (LCA) study conducted by MPOB on palm biodiesel, an LCA study was also undertaken by a scientist with the Standards and Industrial Research Institute of Malaysia (SIRIM) which indicated that palm oil is a nett carbon sequesterer when used as biodiesel. This means that palm biodiesel achieves carbon emission savings of more than 100% when compared to petroleum diesel. The result is derived from the carbon

TABLE 3. EXPORTS OF MALAYSIAN OIL PALM PRODUCTS TO THE EUROPEAN UNION (EU) (value and volume) IN 2008

Product	Value (RM million)	Volume (t)
Palm oil	5 837.12	2 052 771
Palm kernel oil	464.89	124 666
Palm kernel cake	558.19	1 246 630
Oleochemical products	2 651.40	609 259
Finished products	139.98	37 557
Biodiesel/palm methyl ester	258.16	70 273
Others	44.75	22 339
Total	9 954.49	4 163 195

Source: MPOB.

sequestration and characteristics of the multiple co-products of the oil palm, and if confirmed by other independent studies, this new figure will mean that only palm oil is fit to be used as biodiesel, while the other competing oils will only have a marginal carbon emission savings effect and most of them will not meet the new threshold carbon emission savings of 35% as stipulated in RED.

According to Schill (2008), Van Zutphen (a Dutch consultant from Carbon Solutions BV), during the first International Palm Oil Sustainability Conference held in mid April 2008, Malaysian palm oil, excluding land-use effects, can achieve a 60% net carbon dioxide reduction when used as a feedstock for biodiesel. In fact, according to Annex VII of the earlier proposed EU Directive, palm biodiesel (process not specified) contributes to 16% (default) and 32% (typical) GHG emission savings, while palm biodiesel (process with no methane emission to air at oil mill) contributes to 51% (default) and 57% (typical) GHG emission savings. As such, palm oil has the greatest potential for improving its carbon balance.

In fact, palm oil is among the most energy-efficient crops for the production of biofuel. Without even taking into account carbon sequestration by the oil palm, palm oil achieves GHG emission savings of up to 80%-90% when compared to fossil fuels. Furthermore, compared to other countries, the use of land for agriculture in Malaysia is low, at about 20%-24% of the total land area of 33 million hectares. In fact, very limited new areas are cleared for oil palm cultivation and even that occurs only in Sarawak. In Peninsular Malaysia, it is merely the conversion of existing areas planted with rubber to oil palm. The Malaysian oil palm industry has a long history of good environmental practices, being at the forefront of issues like integrated pest management, waste management, effluent management and zero-burning. In addition, the Malaysian Government's legislation is also stringent in regulating the orderly development of the local oil palm industry.

Sustainability Criteria

The Directive also indicate the need to certify biodiesel that fulfills the sustainability criteria. If certification to prove sustainability is required, it should be applied to all other oils and fats sources. The Malaysian oil palm industry has been working towards producing certified sustainable palm oil by supporting the Roundtable on Sustainable Palm Oil (RSPO) initiative, which was launched in April 2004. The RSPO was formally established under Article 60 of the Swiss Civil Code with a governance structure that ensures fair representation of all stakeholders throughout the entire supply chain.

Certification under the RSPO is based on eight principles and 39 criteria. Palm oil produced from plantations that meet these principles and criteria will qualify to be labelled as 'Certified Sustainable Palm Oil'. Currently, there are 14 major palm oil producers who are committed to the RSPO. United Plantations Berhad and Sime Darby Plantation Sdn Bhd are the first two Malaysian companies being awarded with Sustainable Palm Oil Certification by RSPO in 2008. RSPO has been recognized by the Malaysian Government as a business-to-business voluntary initiative with no legislative compulsion requiring compliance (Yusof Basiron, 2008). In fact, the Minister of Plantation Industries and Commodities, Malaysia, has expressed Malaysia's commitment to sustainability through programmes, such as the RSPO, minimizing the CO_2 emissions and adopting agricultural practices that conserve the rainforests and wildlife.

However, unlike for big companies such as United Plantations Berhad and Sime Darby, this could pose problems to medium and small companies involved in the palm oil trade. As the RSPO certification scheme involves costs, not all smallholders or medium and small companies can participate in the scheme as they may not have certain data required by the scheme. As more countries become conscious about environmental and sustainability issues as well as food safety, like the EU, gradually such requirements could become mandatory in the global trading of oils and fats. Therefore, a much simpler system or scheme could be introduced to all levels of the Malaysian oil palm industry, catering especially to the smallholders as well as the medium and small companies in order for them to comply with such requirements.

Article 16 (of the proposed Directive) on verification of compliance with the environmental sustainability criteria for biofuels and other bioliquids comes into focus at this stage. This Article provides some flexibility to the EU in evaluating compliance to sustainability criteria if bilateral or multilateral agreements between the EU and third countries could guarantee that the sustainability criteria are met or that voluntary national or international schemes setting standards for the production of biofuels are sufficient guarantees for compliance, such as RSPO. Therefore, more discussions should be held with the EU authorities to ensure that the RSPO certification scheme is accepted by the EU in terms of certification of palm oil coming from Malaysia, and more importantly to ensure that such certification requirement does not affect trade between Malaysia and the EU.

CONCLUSION

The increased production of biodiesel has greatly changed the balance of supply and demand of oils and fats in the EU. This situation will continue in the future, providing an opportunity for palm oil to complement the use of rapeseed oil in biodiesel production. The EU has an ambitious plan in setting a 10% target for use of renewable energy sources in transportation by 2020 as stipulated in the RED. Nevertheless, the EU is not expected to meet the 2020 target with its own rapeseed oil production. It is expected that the growing demand for future biodiesel will be met through the increased importation of soyabean oil, animal fats and palm oil. It is forecast that the imports of palm oil for food use in the EU will continue to rise in the near future to complement the shifting of domestic vegetable oils, mainly rapeseed oil, into the energy sector. Palm oil imports can easily fill the vacuum left by the rapeseed oil in the food industry (*Table 4*). It is forecasted that about 10%-30% of the EU's biodiesel requirement could come from palm oil by 2010 (Mohd Jaaffar Ahmad, 2008). Without subsidies, palm oil by comparison is still cheaper than rapeseed oil for biodiesel production. The biofuels market in the EU is largely drawn by legislation, and palm oil is both technically and commercially competitive as a feedstock for the energy sector.

Palm oil has achieved remarkable success in the EU in the past. The future appears equally promising. In fact, European products have the capacity to use more palm oil, and this is further aided by the EU's enlargement process of recruiting new member countries.

TABLE 4. EU 27: DOMESTIC USE OF RAPESEED OIL (million tonnes)

	October/September			
	2007/08[F]	2006/07	2005/06	2004/05
Total	**7.57**	**7.24**	**6.65**	**5.38**
		Thereof:		
Biofuels[a]	4.67	4.62	4.03	2.71
RME[b]	3.92	3.92	3.53	2.51
Direct use[c]	0.75	0.70	0.50	0.20
Other use[d]	2.90	2.62	2.62	2.67

Note:
[F] Forecasted figures.
[a] Mainly biodiesel.
[b] Rapeseed methyl ester.
[c] Direct use of refined rapeseed oil as fuel.
[d] Mainly for food applications.
Source: *Oil World No. 22 Vol. 51* (30 May 2008.)

REFERENCES

ANON. (2009). Malaysian palm oil. *Fortune 1*.

EUROPEAN BIODIESEL BOARD. http://www.ebb.org.eu (press release) 2008.

GLOBAL BIOFUELS CENTER (2008). *Global Biofuels Center*. Various issues (2007-2008).

MOHD JAAFFAR AHMAD (2008). *Review of the Malaysian Palm Oil Export to the EU27 in 2007*. Unpublished.

MPOB (2008). *Malaysian Oil Palm Statistics*. MPOB, Bangi.

OIL WORLD (2008a). *Oil World Annual 2008*. ISTA Mielke Gmbh.

OIL WORLD (2008b). *Oil World Weekly*. Various issues (2008). ISTA Mielke Gmbh.

SCHILL, S R (2008). Palm oil fights back. URL: http://www.biodieselmagazine.com

US DEPARTMENT OF AGRICULTURE (2008). *GAIN Report: EU27 Biofuels Annual 2008.*

YUSOF BASIRON (2008). Hallmark of sustainable development. *MPOC Global Oils and Fats Business Magazine, 5 (4) (Oct – Dec) 2008.*