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WEDNESDAY, MAY 23, 2007

Philippines in US\$1.3 billion biofuel project with UK's NRG

The Philippines signed a US\$1.3 billion (€966 million) deal with UK-based NRG Chemical Engineering today to build biofuel refineries and plantations, in one of the biggest foreign investments into the Southeast Asian country. The news comes at a time when another British biofuel company, D1 Oils, is expanding its plantation base in the Mindanao region.



State-owned Philippine National Oil Co. (PNOC) said its biofuels unit would form a joint venture with NRG, whose billion dollar investment, spread over five years, is a big boost for Manila's ambitions to become a major source of alternative fuels.

Chris de Lavigne, corporate adviser of NRG Chemical, said the company decided to invest in the Philippines because of its location, climate and the government's pro-active efforts in promoting biofuels. Peter Abaya, president of PNOC-Alternative Fuels (PNOC-AFC), told reporters he had been in negotiations with the company, which also has offices in Singapore, for 9 months.

The two groups have made the following plans:

- to build a large 3.5 million metric tonne biorefinery, at a cost of around US\$450 million, within three years. The refinery will initially use coconut and vegetable oil as feedstock until the planned jatropha plantation can start commercial production.
- to create a jatropha plantation larger than 1 million hectares (2.471 million acres) to grow the biodiesel feedstock. The plantation will cost US\$600 million (€446 million).
- to build two 300,000 metric tonne bioethanol plants, at a cost of \$200 million each; feedstock will be sweet sorghum.

The 3.5 million ton biorefinery would become one of South East Asia's largest plants. Jatropha, known locally as 'tuba tuba' yields anywhere between 1 and 2 tons of inedible oil seeds per hectare. At average processing efficiencies, from each ton around 200 liters of biodiesel can be extracted. A 1 million hectare plantation would thus represent a 'biofuel reserve' of between 1.25 and 2.5 million barrels of oil equivalent energy per annum (between 3440 - 6900 boe/day; the island state's daily oil consumption stands at 342,000 bpd, so the jatropha plantation could cover between 1 and 2% of this demand). The productive life of jatropha shrubs is between 30 and 50 years.

Interestingly, the ethanol plants will rely on sweet sorghum for their feedstock. It is not clear whether the joint venture will be planting or sourcing the new high yield and drought tolerant hybrids that contain higher levels of sugar in their stalks, as they were developed by the ICRISAT ([earlier post](#)). This is likely, since the Philippine government has expressed interest in these new varieties.

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QUICK NOTES

 Spanish energy and engineering group Abengoa will spend more than €1 billion (US\$1.35 billion) over the next three years to boost its bioethanol production, Chairman Javier Salgado said on Tuesday. The firm is studying building four new plants in Europe and another four in the United States. [Reuters](#) - May 23, 2007.

 According to The Nikkei, Toyota is about to introduce flex-fuel cars in Brazil, at a time when 8 out of 10 new cars sold in the country are already flex fuel. Brazilians prefer ethanol because it is about half the price of gasoline. [Forbes](#) - May 22, 2007.

 Virgin Trains is conducting biodiesel tests with one of its diesel engines and will be running a Voyager train on a 20 percent biodiesel blend in the summer. [Virgin Trains Media Room](#) - May 22, 2007.

 Australian mining and earthmoving contractor Piacentini & Son will use biodiesel from South Perth's Australian Renewable Fuels across its entire fleet, with plans to purchase up to 8 million litres from the company in the next 12 months. Tests with B20 began

months. Tests will begin in October 2006 and Piacentini reports very positive results for economy, power and maintenance. [Western Australia Business News](#) - May 22, 2007.

Malaysia's Plantation Industries and Commodities Minister Datuk Peter Chin Fah Kui announces he will head a delegation to the EU in June, "to counter European anti-palm oil activists on their own home ground". The South East Asian palm oil industry is seen by many European civil society organisations and policy makers as unsustainable and responsible for heavy deforestation. [Malaysia Star](#) - May 20, 2007.

Paraguay and Brazil kick off a top-level seminar on biofuels, cooperation on which they see as 'strategic' from an energy security perspective. 'Biocombustíveis Paragwai-Brasil: Integração, Produção e Oportunidade de Negócios' is a top-level meeting bringing together the leaders of both countries as well as energy and agricultural experts. The aim is to internationalise the biofuels industry and to use it as a tool to strengthen regional integration and South-South cooperation. [PanoramaBrasil \[*Portuguese\]](#) - May 19, 2007.

Portugal's Galp Energia SGPS and Petrobras SA have signed a memorandum of understanding to set up a biofuels joint venture. The joint venture will undertake technical and financial feasibility studies to set up a plant in Brazil to export biofuels to Portugal. [Forbes](#) - May 19, 2007.

The Cypriot parliament has rejected an amendment by President Papadopoulos on the law regarding the use of biofuels that contain genetically modified substances. The amendment called for an alteration in the law that currently did not allow the import or use of biofuels that had been produced using GM substances, something that goes against a recent EU Directive on GMOs. [Cyprus Mail](#) - May 18, 2007.

According to Salvador Rivas, the director for Non-Conventional Energy at the Dominican Republic's Industry and Commerce Ministry, a group of companies from Brazil wants to invest more than 100 million dollars to produce ethanol in the country, both for local consumption and export to the United States. [Dominican Today](#) - May 16, 2007.

EWE AG, a German multi-service energy company, has started construction on a plant aimed at purifying biogas so that it can be fed into the natural gas grid. Before the end of the year, EWE AG will be selling the biogas to end users via its subsidiary EWE Naturwatt. [Solarthemem](#) [*German] - May 16, 2007.

Scania will introduce an ethanol-fueled hybrid bus concept at the UITP public transport congress in Helsinki 21-24 May 2007. The full-size low-floor city bus is designed to cut fossil CO2 emissions by up to 90% when running on the ethanol blend and reduce fuel consumption by at least 25%. [GreenCarCongress](#) - May 16, 2007.

A report by the NGO Christian Aid predicts there may be 1 billion climate

new varieties.

The joint venture between PNOC and NRG would be 70 percent owned by the latter:

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President Gloria Macapagal Arroyo is determined to reduce the Philippines' dependence on imported crude oil in favour of alternative fuels produced from locally grown crops, such as sugar cane, coconut and jatropha.

A new law requiring a mandatory 1 percent coconut blend in diesel was introduced earlier this month and by 2009 gasoline will contain a 5 percent mix of ethanol to reduce the Philippines' US\$6 billion plus oil import bill.

The government has courted foreign investment to boost biofuel local production and earlier this year signed agreements for five possible ethanol projects with China.

But NRG's investment is the biggest yet into the biofuels sector and a boost for the country's low levels of foreign direct investment, which have failed to match buoyant portfolio inflows from overseas amid high power costs and concerns over corruption. Manila is hoping its English-speaking workforce and abundant natural resources will attract more FDI.

D1 Oils expands

The news of the joint venture comes at a time when British AIM-listed D1 Oils expands its jatropha plantations in the Philippines. The company is going around Mindanao to entice farmers to cultivate tuba tuba with the hope to plant 10,000 hectares in the near term.

Recto Doctor, country agronomist of D1 Oils Asia Pacific Inc., a subsidiary of D1 Oils UK, said the company would provide planting materials, technical assistance and a marketing agreement to farmers willing to grow the crop.

"Farmers can pay us upon harvest," he said. Doctor said the firm is aggressive in its jatropha project now that the country is implementing the Biofuels Act, which was signed into law only last January 17.

He noted that the firm prefers unutilized lands than converting existing farmlands grown with crops like corn and rice to jatropha plantations. Jatropha, Doctor pointed out, would help alleviate poverty in the countryside and can help in the protection of the environment since it can prevent soil erosion.

The crop could be harvested seven months from planting and has a life span of 30 years, he said, adding that for the first year, a hectare could yield between P15,000 to P20,000 and grows bigger to P30,000 as the plant matures. D1 Oils Asia is working out a financing window for farmers through the Land Bank of the Philippines, he disclosed, details of which Doctor did not discuss.

The firm has plans to establish a refinery in the country but only after the desired number of hectares will be planted with jatropha, Doctor said. With 500 to 1,000 hectares, it would be enough to put up an extracting plant, he added.

More information:

Sun Star (Manila): [British firm lures Minda farmers to grow jatropha](#) - May 21, 2007

Sun Star (Manila): [RP, NRG Chemical of Britain sign US\\$1.3 billion biodiesel project](#) - May 22, 2007.

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U.S. scientists develop drought tolerant sorghum f...

CROP NEWS



International research effort underway to sequence cassava genome, which may result in increased starch yields - [USDA Agricultural Research Service](#) - Aug. 30, 2006

Cassava has one of the highest rates of CO2 fixation and sucrose synthesis for any C3 plant. With this in mind, researchers from Ohio State University develop transgenic cassava with starch yields up 2.6 times higher than normal plants by increasing the sink strength for carbohydrate in the crop. This means cassava makes for a 'super crop' when it comes to both CO2 fixation and carbohydrate production, i.e. sugars, the feedstock for ethanol - [Plant Biotechnology Journal](#) - Volume 4/Issue 4 - July 2006



Vietnam's Institute of Tropical Biology to invest in Jatropha research - [Le courrier du Vietnam](#) - Sept. 6, 2006



Genetic study proves humans have pushed orangutans to the brink of extinction; genetic decline coincides with establishment of oil palm plantations in Malaysia/Indonesia since the 1950/60s - [Public Library of Science / Biology](#) Volume 4/Issue 2 - February, 2006



Researchers at the International Institute for the Semi-Arid Tropics have developed a sweet sorghum for the production of ethanol. The new variety has a very high sugar content in its root. Average yields in trial fields in the Philippines were between 95 to 125 tons, considerably higher than those of sugarcane - [ICRISAT](#) - Feb. 28, 2007

Sokoine University of Agriculture, Tanzania, develops sorghum and millet processing technologies suitable for local conditions in effort to empower small farmers - [IPP Media](#) - Sept. 6, 2006

South Africa blocks GM Sorghum project for fears over contamination of local wild sorghums - [Kruger Park](#) - Aug. 26, 2006



Brazilian authorities have given their fiat for field trials with genetically modified sugarcane plants. The Centro de Tecnologia Canavieira (Cane Technology Center - CTC) will test three genetically modified varieties that are expected to yield 15% more sugar - [GMO Compass](#)



Brazilian state of Acre intends to make cattle ranchers reforest land which they have cleared for grazing.

The sustainable forestry policy is based on replanting economic tree crops such as mahogany, acai, Brazil nut and palms - [BBCNews](#) Sept. 27, 2006

Illegal deforestation of acacia for charcoal is becoming a serious problem in Kenya's Naivasha area. Nobel Peace Prize laureate Wangari Maathai's Green Belt Movement re-afforests with acacia but needs more support to win fight against illegal loggers - [Kenya Times](#) Sept. 5, 2006

Australian scientists are conducting a 'time-machine' experiment to see how eucalyptus trees cope with

refugees and migrants by 2050. It shows the effects of conflicts on populations in poor countries and draws parallels with the situation as it could develop because of climate change. [Christian Aid](#) - May 14, 2007.

• Dutch multinational oil group Rompetrol, also known as TRG, has entered the biofuel market in France in conjunction with its French subsidiary Dyneff. It hopes to equip approximately 30 filling stations to provide superethanol E85 distribution to French consumers by the end of 2007. [Energy Business Review](#) - May 13, 2007.

• A group of British organisations launches the National Forum on Bio-Methane as a Road Transport Fuel. Bio-methane or biogas is widely regarded as the [cleanest of all transport fuels](#), even cleaner than hydrogen or electric vehicles. Several EU projects across the Union have shown its viability. The UK forum was launched at the Naturally Gas conference on 1st May 2007 in Loughborough, which was hosted by Cenex in partnership with the NSCA and the Natural Gas Vehicle Association. [NSCA](#) - May 11, 2007.

• We reported earlier on Dynamotive and Tecna SA's initiative to build 6 bio-oil plants in the Argentinian province of Corrientes ([here](#)). Dynamotive has now officially confirmed this news. [Dynamotive](#) - May 11, 2007.

• Nigeria launches a national biofuels feasibility study that will look at the potential to link the agricultural sector to the automotive fuels sector. Tim Gbugu, project leader, said "if we are able to link agriculture, we will have large employment opportunity for the sustenance of this country, we have vast land that can be utilised". [This Day Onlin \(Lagos\)](#) - May 9, 2007.

• Brazilian President Luiz Inácio Lula da Silva meets with the CEO of Portuguese energy company Galp Energia, which will sign a biofuel cooperation agreement with Brazilian state-owned oil company Petrobras. [GP1 \(*Portuguese\)](#) - May 9, 2007.

• The BBC has an interesting story on how biodiesel made from coconut oil is taking the pacific island of Bougainville by storm. Small refineries turn the oil into an affordable fuel that replaces costly imported petroleum products. [BBC](#) - May 8, 2007.

• Indian car manufacturer Mahindra & Mahindra is set to launch its first B100-powered vehicles for commercial use by this year-end. The company is confident of fitting the new engines in all its existing models. [Sify](#) - May 8, 2007.

• The Biofuels Act of the Philippines has come into effect today. The law requires all oil firms in the country to blend 2% biodiesel (most often coconut-methyl ester) in their diesel products. [AHN](#) - May 7, 2007.

• Successful tests based on EU-criteria result in approval of 5 new maize hybrids that were developed as dedicated biogas crops [*German]. [Veredlungsproduktion](#) - May 6, 2007.

• With funding from the U.S.

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experiment to see how eucalyptus trees cope with increased levels of CO2 and global warming. - [University of Western Sydney](#) Aug. 28, 2006



Bamboo planting can slow deforestation, scientists from the International Center for Research in Agroforestry in Nairobi, Kenya, say. Bamboo rapidly becoming economically beneficial crop with large potential for energy, bioremediation, and afforestation - [Chosun \(S.Korea\)](#) Aug. 30, 2006

"The beauty of miscanthus is that you only have to sow it once...Because of the way it grows, there is no need for fertilisers or chemicals", an English entrepreneur talks about his experience with Miscanthus as an energy crop - [Grantham Today](#) Aug. 8, 2006

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Department of Labor Workforce Innovation for Regional Economic Development (WIRED), Michigan State University intends to open a training facility dedicated to students and workers who want to start a career in the State's growing bioeconomy. [Michigan State University](#) - May 4, 2007.

☀ Researchers from the Texas A&M University have presented a "giant" sorghum variety for the production of ethanol. The crop is drought-tolerant and yields high amounts of ethanol. [Texas A & M](#) - May 3, 2007.

☀ C-Tran, the public transportation system serving Southwest Washington and parts of Portland, has converted its 97-bus fleet and other diesel vehicles to run on a blend of 20% biodiesel beginning 1 May from its current fleet-wide use of B5. [Automotive World](#) - May 3, 2007.

☀ The Institut Français du Pétrole (IFP) and France's largest research organisation, the CNRS, have signed a framework-agreement to cooperate on the development of new energy technologies, including research into biomass based fuels and products, as well as carbon capture and storage technologies. [CNRS](#) - April 30, 2007.

☀ One of India's largest state-owned bus companies, the Andra Pradesh State Road Transport Corporation is to use biodiesel in one depot of each of the 23 districts of the state. The company operates some 22,000 buses that use 330 million liters of diesel per year. [Times of India](#) - April 30, 2007.

☀ Indian sugar producers face surpluses after a bumper harvest and low prices. Diverting excess sugar into the ethanol industry now becomes more attractive. India is the world's second largest sugar producer. [NDTVProfit](#) - April 30, 2007.

☀ Brazilian President Luiz Inacio Lula da Silva and his Chilean counterpart Michelle Bachelet on Thursday signed a biofuel cooperation agreement designed to share Brazil's experience in ethanol production and help Chile develop biofuels and fuel which Lula seeks to promote in other countries. More info to follow. [People's Daily Online](#) - April 27, 2007.

☀ Italy's Benetton plans to build a €61 million wood processing and biomass pellet production factory Nagyatád (southwest Hungary). The plant will be powered by biogas. [Budapest Sun](#) - April 27, 2007.

☀ Cargill is to build an ethanol plant in the Magdeburger Börde, located on the river Elbe, Germany. The facility, which will be integrated into existing starch processing plant, will have an annual capacity of 100,000 cubic meters and use grain as its feedstock. [FIF](#) - April 26, 2007.

☀ Wärtstilä Corporation was awarded a contract by the Belgian independent power producer Renogen S.A. to supply a second biomass-fuelled combined heat and power plant in the municipality of Amel in the Ardennes, Belgium. The new plant will have a net electrical

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power output of 3.29 MWe, and a thermal output of up to 10 MWth for district heating. The electrical output in condensing operation is 5.3 MWe. [Kauppalehti](#) - April 25, 2007.

