

## **New and Renewable Energy in Malaysia**

Being a major agricultural commodity producer in the region Malaysia is well positioned amongst the ASEAN countries to promote the use of biomass as a renewable energy source in her national energy mix. Malaysia's Five Fuel Diversification Policy provides the renewable energy policy guidance while the current grid-based small renewable energy programmes or SREP, embodies national renewable energy strategy.

Supporting the policy instrument, the government initiates market based instruments via investment incentives and tax measures to encourage wider implementation of biomass based energy production. In terms of eligibility, companies which sell energy to other companies/associate companies are eligible for either Pioneer Status or Investment Tax Allowance. In the same context, it also eligible for companies to sell energy and at the same time use the energy generated to apply for Investment Tax Allowance for the whole project or apply for Pioneer Status for energy to be sold. These activities are currently being promoted under the promotion of Investment Act, 1986.

In a recent development, the Prime Minister Datuk Seri Abdullah Ahmad Badawi has announced the National Bio-fuel Policy, which is expected to kick-start the blending of diesel with palm oil-based bio-diesel to power diesel vehicles and electricity generators. Diesel, which is heavily subsidized by the government, will be mixed with 5% palm oil bio-diesel before being sold to consumers. The Government envisaged that Malaysia to be able to cut its diesel imports by 500,000 tonnes a year via the B5 palm bio-diesel project.

The Clean Development Mechanism (CDM) as defined in Article 12 of the Kyoto Protocol, involves climate change mitigation activities undertaken between Annex I (developed) countries and non-Annex I (developing) countries. The CDM is the only mechanism in the Kyoto Protocol through which developing countries can engage in emission reduction activities. CDM would assist Annex 1 countries in achieving their targeted reductions in greenhouse gases (GHG) emissions and at the same time contributes to sustainable development in non-Annex 1 countries.

### **STATUS OF SMALL RENEWABLE ENERGY POWER PROGRAMME (SREP)**

Small power generation plants utilising RE sources can apply to sell electricity to the utility through the Distribution Grid System. Under the SREP Programme, the utilization of all types of RE sources, including biomass, biogas, municipal waste, solar, mini-hydro and wind, are allowed. Maximum capacity of small Renewable Energy plant designed for sale of power to the grid must not exceed 10 MW. A Special Committee on Renewable Energy (SCORE) has been set up under the then Ministry of Energy, Communications and Multimedia to coordinate the programme and a secretariat functioning as a One-Stop Centre at the Energy Commission facilitates industry participation in the programme.

Table 5: Status of SREP Projects Approved by SCORE as at August 2005

No.	Type	Energy Resource	Approved Application	Grid Connected Capacity (MW)	%
1	Biomass	Empty Fruit Bunches	*19	133.2	50.1
		Wood Residues	1	6.6	2.5
		Rice Husk	1	10.0	3.8
		Municipal Solid Waste	1	5.0	1.9
		Mix Fuels	-	-	-
2	Landfill Gas		4	9.0	3.4
3	Mini-hydro		26	101.9	38.4
4	Wind and Solar		-	-	-
	<b>Total</b>		<b>52</b>	<b>265.7</b>	<b>100</b>

Source: Energy Commission (SCORE Meeting), August 2005.

Latest report shows 52 projects has been approved, 22 projects use biomass as the fuel source, of which 19 of them use palm oil wastes, and the other 3 projects use rice husk, wood residue and municipal waste. In addition to the above biomass-fuelled projects, there are 4 landfill gas projects and 26 mini-hydro projects. Up to date, only 6 SREP developers have requested for and given licenses to proceed with the implementation of their projects. Currently, 2 of the SREP projects have been commissioned and connected to the national grid.

## **BARRIERS AND CHALLENGES IN DEVELOPING RENEWABLE ENERGY IN MALAYSIA**

### **Fuel Security**

The reliability of fuel supply is an issue since the fuel suppliers are not committed to have a long term agreement with the RE projects developers. This happened due to the reliability of the fuel is dependent on the mills capacity and operation. Among the reasons cited for this concern are the uncertainties in the actual volume and quality of the waste/EFBs from the nearby mills, seasonal nature of the palm oil mill operations and absence of the standard contract procedures concerning the supply and pricing of waste/EFB. There is also competition with non-energy uses of the palm oil residues. At the moment, there is a competitive use of biomass for the products and processes such as pulp and paper, medium density fibreboard (MDF), composting for fertilizer and mulching, and etc.

## **Electricity Sales Price**

Another issue that makes the RE developers not interested to invest in the RE power projects is the sales price of RE electricity. In Malaysia, to determine the sales price for RE generated electricity involves a bargain between potential investors in RE power plants, who are looking for acceptable level of profit, and the national utility that is concerned with the magnitude of subsidy it has to burden in order to support the Government's fuel diversification policy. The present recommended sales price of RE electricity at 17 cent per kWh that is based on a study done by DANIDA is obviously unacceptable to investors. As indicated in the study, pegging the sales price at 17 cents per kWh is close or below the unit cost of production, besides assuming, unrealistically, static costs of production over the long-term of the sales contract.

## **Renewable Energy Power Purchase Agreement (REPPA)**

In Malaysia, the PPA/REPPA which is between the national utility and the RE project developers also plays a significant effect to the RE project developers. At the moment, it becomes a hindrance to their initiative due to the difficulty in getting financing, as REPPA does not provide a robust cash flow for Bankers to be comfortable with. Furthermore, some of the conditions imposed do not provide the confidence for the Bankers to make a needed investment. Some of the obvious conditions are "take and pay" payment structure, the non-inflatory fixed tariff for the concession period. They're maybe other "non-bankable" conditions that will not permit the project to secure the funding from the Banks. Another REPPA barrier is the long negotiation period before the sign-up of the agreement. The developers of the RE projects are generally from small companies with limited resources. The enthusiasm for the projects is based on the capability to fund the development at the minimal cost compared to the gigantic IPP projects. Nonetheless, the transaction of an RE projects is not any different from the IPPs with the similar processes involved to arrive at a "bankable" project. Therefore, the longer the transaction takes place the more cost the development will occur. If such company does not have the staying power, it will simply abandon their initiative.

## **Subsidy for Conventional Energy System**

Every type of energy has benefited from assistance in its start-up phase, and renewable energy should be no exception. There is still massive support to conventional energy sources, which is in the forms of subsidies and export credits. If renewable energy is to be competent economically, it is important that renewable energy receives the same treatment as fossil fuels. Otherwise, such subsidies for fossil fuel have to be removed or made transparent in order to create level the playing field.

## **Lack of Accessible Financing Scheme and Uncertain Financial Viability**

In Malaysia, it is difficult to obtain financing for biomass-based power generation/CHP projects in Malaysia. This is further aggravated by the fact that financial/banking institutions in the country are not familiar with the financing of such business ventures. Due to the perceived high risks, these institutions are cautious in providing financial assistance for such kind of projects. Only a few of the existing technology financing schemes in the country include renewable energy in their portfolios. Based on past experience, such schemes usually require a long application and approval process. Even though, biomass-based power generation/CHP in the palm oil industry has long been practiced but power sales to the grid has not been done due to poor economics arising mainly from the inability to sell to the grid and to sell at favorable rates. Unless a “level playing field” price is mutually arrived at between the relevant stakeholders (including Energy Service Industries (ESIs)), aside from the pertinent government support policies and regulations, biomass-based power generation/CHP will not be an attractive business venture. Negotiations have been ongoing amongst concerned stakeholders to arrive at a final level playing field.

## **Recommendation**

It is recommended that the government to highlight the following areas to be considered as the main agenda in the ASEAN New & Renewable Energy meeting:

1. Review the current RE policy in each ASEAN country.
2. Review the current RE incentive and support in each ASEAN country.
3. Identify the obstacles and barriers in implementing the RE projects (Financing, technology, policy, awareness etc)
4. Identify the RE technologies and established a partnerships to promote the technologies.
5. Establish standardised RE policy for ASEAN countries.
6. ASEAN countries to be proactive in formulating and implementing RE.