The effects of Feed in Tariff on Foreign Direct Investment in Malaysia

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Abstract: - Foreign Direct Investment in Malaysia has nearly reached to 10 billion dollars in 2011. As 2011 statistics shows, almost largest Foreign Direct Investment figures in Malaysia are dedicated to energy sector. Also, Malaysia has launched a new Renewable Energy mechanism under the name Feed in Tariff. Feed in Tariff is a new incentive for energy producers which can affect Malaysian Foreign Direct Investment largely. This paper utilises an archival research on current Malaysian Foreign Direct Investment in contrast with solar part of Feed in Tariff policy. The paper discusses the Malaysia’s Renewable Energy Feed in Tariff scheme in solar energy and its effects on absorbing the Foreign Direct Investment of the country. Investors in Malaysia and policy makers in the other countries especially in Association of South East Asian Nations (ASEAN) can use this experience and trace the effects of Feed in Tariff on Foreign Direct Investment in Malaysia.

Key-Words: - Feed in Tariff; Renewable Energy; Foreign Direct Investment.

1 Introduction
Traditionally Malaysia’s energy is base on gas and oil [1]. The total capacity of electricity of Malaysia is 13 GW which is including 84% thermal and 16% hydroelectric [2]. Solid waste is another energy resource in Malaysia which it’s potential for 2011 was 20 MW. At the same year Malaysia had 110 MW potential for generating biomass and 20 MW for biogas [3]. Generating power with using wind is not that serious and Malaysia has yet to have any wind power plant connected to the grid [4]. Malaysia is high potential in geothermal where is the source of 79 manifestation areas. In 2009, it was reported that in Sabah in East peninsular of Malaysia (East peninsular of Malaysia is a big island including Brunei, Sabah and Sarawak and a part of East Indonesia) has an electricity generation potential of up to 67MW [3]. There are many mini-hydro projects under process in Malaysia base on run of river system. At the current situation, there are 51 units with total capacity of 23.35 MW in Peninsular Malaysia, Sabah and Sarawak.

The Average potential for solar radiation in Malaysia is 4.5 (kWh/m2/day) and installed solar capacity is 9 MW. This tropical country is warm throughout the year and averagely has 12 hours of daily radiance heat most area of the country [5]. In this way, about 1400 to 1900 kWh/m2 of energy is received annually [6]. Typically, certain local parameters must be observed for the installation of solar systems in this country so that the maximum possible energy harvest is achieved [7]. In addition to the direct use of solar energy, Malaysia has remarkable capabilities in production of electricity from solar energy [8]. At present, the amount of electricity production is 1 MW in this country and regarding the available capabilities
it is estimated that this capacity is increased up to 6500 MW [9]. The expansion of using renewable energies was in the Eighth Malaysian Plan during 2001 to 2005 for the first time [10]. In this plan, five renewable energies including solar, wind, hydro, biomass and biogas are mentioned. In 8th Malaysian Plan, 5 percent of the total energy production of Malaysia is allocated for renewal energies [11].

During the development of the Ninth Malaysian Plan, i.e. 2006 to 2010, the determined goals for renewable energies were maintained (300 MW – Peninsular Malaysia; 50 MW – Sabah) [12]. In the meantime, the share for the five energy sources were delineated as %56 natural gas, %36 coal, %6 hydro, %0.2 oil, and %1.8 renewable energies [13]. Moreover, decreasing the amount of carbon [dioxide] by 40 percent in 2020 (compared with 2005) is considered in the Ninth Malaysian Plan [14].

At present, the efficiency of solar energy harvested from the sun has reached 40% in Malaysia [15]. Nevertheless, its cost has decreased significantly compared with the past [16]. It is predicted that, by 2050, the price of energy generated from solar cells is less than the energy generated from the fossil energy or hydroelectric. It is also predicted that such energy will have a cost less than $12 cents kW/h (10-12 cents) [17].

2 Malaysia’s Renewable Energy Feed in Tariff Scheme

Green energy, not only provides a good environmental quality but also provides a comfortable, healthy and hygiene climate [18] and Malaysian government was not incurious to this important topic. In 10th Malaysia Plan, the government of Malaysia introduced new, renewable energy regulation which is including FiT [19]. This new regulation encourages people to generate energy in their houses by renewable sources like solar panels [20]. The target of 10th Malaysian Plan is generating 5.5% of total energy by the end 2015 [21]. REFit is a new mechanism in Malaysia which is carried out under the law for the renewable energies whose purpose is to accelerate the production of renewable energies [22]. This scheme guarantees the production of local renewable energies for a given period [21]. FiT is a governmental strategy for accelerating the investment in renewable energies in Malaysia [23]. In Malaysia, FiT law has had a distinctive look at the four main renewable energies, i.e., solar PV, biomass, biogas, and mini-hydro. In Malaysia, Feed-in Tariff (FiT) law has been, in fact, an incentive strategy to encourage the participation of investors in this sector of the country’s economy [11].

3 Energy trend and solar role

In recent decades, energy consumption has grown rapidly in Malaysia in such a way that, as an example, electricity consumption, which was Less than 5 GW in the 1970s in this country, has hit 90 GW in 2006 (see Fig. 1). The curve for electricity consumption also shows a totally ascending trend during these years. Fig. 1 shows an accelerated trend of electricity demand especially after 1992. In this period the electricity consumption is less than 30 billion kWh. However, from 2002 to 2010 this parameter ranges between 70 billion to 100 billion kWh.

![Electricity Consumption in Malaysia](image-url)
Fig. 1. The electric power consumption in Malaysia from 1970-2009 [24]

However, the trend of the increase in costs has also been quite during these years in such a way that they have reached to about 0.7 per US cent per kilowatt hours from less than 0.3 per kilowatt hours of the 1970s [25]. But the trend of the energy use per dollar because of increasing in electricity consumption has risen slowly in oscillating conditions. Furthermore, in 1980 energy use (kg of oil equivalent) per dollar1;000 GDP (constant 2005 PPP) was 180 which rose to 210 in 1998 and descended to 191 by 2010 (see Fig 2).

Fig. 2. Energy use (kg of oil equivalent) per dollar1;000 GDP (constant 2005 PPP) in Malaysia per USD [26]

Enjoying more than 4-unit level of radiation (sunshine), Malaysia has the most important basis of implementing the solar energy among the renewable energies [22]. Meanwhile, due to its tropical climate, this country more or less receives the same amount of solar energy. In other words, solar energy can be utilized all year long in this country. As it confirms, FiT in Malaysia as a base of enablers entered to RE planning in 2011. Fig. 3 illustrates the formation and growth of the solar PV amongst the renewable energies in Malaysia during 1999 to 2006 which shows the increasing trend of both RE and PV in the same time.

Fig. 3. The growth of the solar PV amongst the renewable energies during 1999 to 2006 in Malaysia [22]

Fig. 4 nicely represents Malaysian government plans of expanding the use of the solar energy amongst the renewable energies through 2011 to 2050. This figure illustrates the effect of FiT since implementing in 2011 and raise in PV shares amongst other REs.

Fig.4. Malaysian trend in generating solar energy amongst renewal energies 2011-2050 [27]

As it is visible solar PV is most suitable and most possible renewable energy in Malaysia. It needs to make investors interest in any size of investment. The range of solar PV can cover whole lands belong to Malaysia. Surely FiT is a
good motivation for small and large inner investments but this accelerated motion needs extra capital which has to secure this growing trend. Foreign Direct Investment or FDI is one of the accepted solutions which is also approved by Malaysian government.

3 Malaysia Foreign Direct Investment

Malaysia Prime Minister in interview with correspondents in May 2012 said that this country is in search of quality FDI. He reiterated that Malaysia is more selective in looking for in high technology, green and alternative energy technologies as well as knowledge-intensive industries [28]. The definitions of green technology has stated in Malaysia National Green Technology Policy which says that “green technology shall be a driver to accelerate the national economy and promote sustainable development”. According this policy Energy sector must “seek to attain energy independence & promote efficient utilisation” [29]. Nevertheless, according to the Oxford Business Group (OBG), Malaysia is significantly improving its ranking in world FDI confidence index from 21st in 2011 to 10th in 2012 [30].

Also, Nations Conference on Trade and Development (UNCTAD)’s reported that the powerful cycle of Foreign Direct Investment (FDI) in Malaysia was in harmony with the restructuring of the global trade in 2010. This figure has nearly reached 10 billion dollars in 2011 [32]. Most foreign investments in Malaysia have been absorbed by the industrial sector and factories which has been approximately 54.9 percent of total foreign investment in 2010. The service sectors have absorbed 34.1 percent of this amount [33]. Among industrial sector, new growth areas that attracted highest levels of FDI is belong to solar industry including silicon photovoltaic wafers and solar glass [34]. As a single project which has been successful in attracting most FDI in Malaysia, the Northern Corridor Economic Region (NCER) registered RM15.3 billion of approved manufacturing licenses, followed by Sarawak Corridor of Renewable Energy (SCRE) which was able to absorbRM8.2 billion [35] which confirms that solar sector is one of the main investors’ concerns. For first time in 2008, Malaysian government received RM12 billion in photovoltaic (PV) industries alone, further boosting the country’s green technology promotion [36]. Four well known solar companies, First Solar, Q-Cells, Sun power and Tokuyama invested in Malaysia [37]. The presence of professional investors in Malaysia helped Malaysian solar sectors’ circumstance in the world. Malaysia was the fourth country in the world in production of the solar PV after China, Germany and Japan in 2009 [38]. With implementing such investments in this sector, Malaysia has had the opportunity surpass Japan in 2011 and to be the world’s third largest producer of solar PV after China and Germany. These new investments create 10,000 high level jobs and have forecast 50,000 new jobs mostly high technology and green in near future [39].

Fig. 6: Foreign Direct Investment (FDI) inflows in Malaysia (US billion) 1998-2011 [31]
Table 1. FDI in Malaysia 1985-2010 [40]

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<tbody>
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<td>Petroleum and gas (US$ million)</td>
<td>0</td>
<td>0</td>
<td>157</td>
<td>618</td>
<td>194</td>
<td>3118</td>
<td>4183</td>
<td>794</td>
<td>344</td>
<td>114</td>
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<td>Petroleum and gas Composition (%)</td>
<td>0.1</td>
<td>0.0</td>
<td>4.3</td>
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As Table 1 shows in 2007, the amount of foreign investment in Malaysia in petroleum and gas sector was in highest point and after that started to come down. The rate of petroleum and gas share amongst Malaysia manufacturing products was on the top point in 2006 and in 2010 it has reached to 2.1% of total FDI in manufacturing.

The fluctuated price of oil and high risk of petroleum sector is one of the main reasons that investors are looking for safer area for investing. In contrast with petroleum and gas which are affected from world policy, solar industry is in lowest point of risk of investment. Another restriction for foreign investors in oil and gas sector owns by Malaysia government. Traditionally in Malaysia oil and natural gas reserves are managed by Petronas, a fortune 500 company wholly owned by the Malaysian government [41] which is a strong barrier for small investors while all investors in any size of investment can enter in solar industry and related fields.

4 Conclusions

Malaysia as a developing country has a high demand of electricity which is increasing significantly. For protecting country from any risk, high price of oil and preventing more carbon emission the Malaysian government plans to support investment in renewable energies, especially solar PV. Hence the Malaysian trend in generating solar energy confirms high level position of solar PV in Malaysia amongst the other renewable energies in 2050. Malaysian government hope that FiT works as a powerful incentive for both inner and foreign investors. On the other side Malaysia is one of the most successful country in absorbing FDI in the East Asia. The implementation of Green Technology Policy in Malaysia was coincided with a well foreign attention to solar sector in 2009. The same time, despite of increasing total Malaysia FDI the rate of FDI in petroleum and gas has decreased meaningfully which is reason for shifting investment from the other type of energy toward solar PV.

References


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