

FEED-IN TARIFF AND RENEWABLE ENERGY FUND

IN BRIEF

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1.0 Introduction

Malaysia has entered into an era of renewable energy (RE). The implementation of Feed-in Tariff (FiT) provides the much needed thrust for RE industry. Prior to 2011, RE has made little progress due mainly to a limited regulatory framework and RE market constraints, hence, lack of viable business model to generate RE and sustain businesses. FiT uses a dual approach: incentives for RE producers to reduce long term risks and it allows the RE producers to generate returns on investments to ensure sustainability.

Malaysia's power sector continues to face major challenges as the nation enters its phase of growth towards a high-income economy. The challenges include tightness in fuel supply, depleting fossil resources and volatile fossil fuel prices. This is further intensified by the low level of acceptance of nuclear energy and large-scale hydropower due to their potential environment hazards; and there is also the need to reduce carbon emissions to alleviate global warming. Reform initiatives are essential to ensure the power supply is adequate to support the nation's economic aspirations.

In the 8th Malaysia Plan (2001 - 2005), RE was identified as the nation's "fifth fuel" in the energy supply mix. There were initiatives taken by the government, namely, Small Renewable Energy Power (SREP) Programme, Biomass Power Generation and Demonstration (BioGen) Project, Malaysia Building Integrated Photovoltaic Technology Application (MBIPV), Centre for Education and Training in Renewable Energy and Energy Efficiency (CETREE) to promote RE utilisation. Despite these initiatives, RE constitutes less than 1% of the total energy supply mix in Peninsular Malaysia. Energy mix is still heavily reliant on fossil fuels, which contribute to more than 90% of the power generation fuel mix.

In line with the National Renewable Energy Policy and Action Plan (RE Policy and Action Plan) which is the RE roadmap, Malaysia has enforced the Renewable Energy Act 2011 [Act 725] (RE Act) and Sustainable Energy Development Authority Act 2011 [Act 726] (SEDA Act) on 1 December 2011. While the RE Act focuses on RE development, SEDA Malaysia (SEDA) is the statutory body mandated under the SEDA Act to oversee the implementation and management of RE,

including the FiT mechanism. One major component to determine the lifeline of FiT is the Renewable Energy Fund (RE Fund).

SEDA seeks an additional 1% surcharge to be contributed to the RE Fund. On 1 December 2011, Tenaga Nasional Bhd (TNB) has imposed 1% surcharge to implement FiT. TNB is the collecting agent (on behalf of SEDA) of the 1% surcharge via TNB electricity bills. This additional surcharge is expected to have an impact on all consumers except for domestic consumers using less than 300kWh per month or currently paying electricity bill of less than RM77 per month. This group forms about 75% of TNB domestic consumers.

2.0 Renewable Energy Act 2011 [Act 725]

Malaysia uses a legal instrument for FiT implementation, via the RE Act.

RE Act provides a mechanism for qualified individuals or non-individuals to sell electricity (up to 30MW) generated from RE resources to power utility firms at a fixed premium price for a specific time. This is FiT mechanism. The fixed premium price, commonly known as FiT rates differ for various renewable resources and installed capacities. Bonus FiT rates apply when the criteria for bonus conditions are met.

The four RE resources that are eligible for FiT are biogas, biomass, small hydropower and solar photovoltaic (PV). Payments to Feed-in Approval Holders (FiAH) are guaranteed from RE Fund for a period of 21 years for solar PV and small hydropower and 16 years for biogas and biomass. Power utility firms (e.g. TNB, Sabah Electricity Sdn Bhd and NUR Distribution) are committed to sign a renewable energy power purchase agreement (REPPA) with FiAH for the effective period.

2.1 *Feed-in Tariff* features:

- Access to the national grid is guaranteed – power utility firms are legally obliged to accept all electricity generated by FiAH;
- FiT rate is contractually fixed for the effective period;
- Provides adequate "degression" to promote cost reduction to achieve "grid parity";

FiT mechanism is supported by an integrated system called e-FiT Online system which includes processing project applications, quota balancing, monitoring and reporting modules as well as FiT payments related to applications. The use of e-FiT is provided under subsection 5 (3) of the RE Act and the Renewable Energy (Feed in Approval and Feed-in Tariff Rates) Rule.

2.2 Renewable Energy Fund

RE Fund is established under RE Act section 23. The management and supervision of the RE Fund is carried out by SEDA. The RE Fund can only be used for the purpose of disbursing FiT payment claims made by power utility firms and to cover administrative expenses relating to the implementation of FiT.

RE Fund as defined under subsection 23 (2) shall consist of –

- sums provided by the Parliament for the purposes of the Fund;
- sums paid to SEDA under subsections 22 (4), 24 (1) and 24 (5) of the RE Act;
- all moneys derived as income from investments made from the Fund, including interest; and
- all other moneys lawfully received by SEDA on behalf of the Fund.

RE Act section 25 allows the power utility firms to recover from the Fund - the difference between the amount the firms paid to FiAH and cost which the power utility firms would had to incur to generate the same amount of electricity generated by FiAH based on prevailing displaced cost; and administrative fees and other expenses incurred by the power utility firms and SEDA for administering the FiT. Hence, TNB having to pay extra to buy electricity from FiAH will be compensated from the RE Fund until the cost of buying electricity is lower than the cost of TNB buying electricity from its traditional resources. A degression rate provides a gradual reduction of the FiT. When the cost of electricity produced from the RE resources is cheaper than the electricity produced from traditional resources, FiT will cease to be paid using the RE Fund. Instead, the power utility firms will assume the payment because the cost to buy from the RE producers will be cheaper than the cost of producing its own electricity.

A FiT quota of annual target capacity is placed in the mechanism. This is to mitigate any risk of insufficient funding due to short-term spikes in the supply.

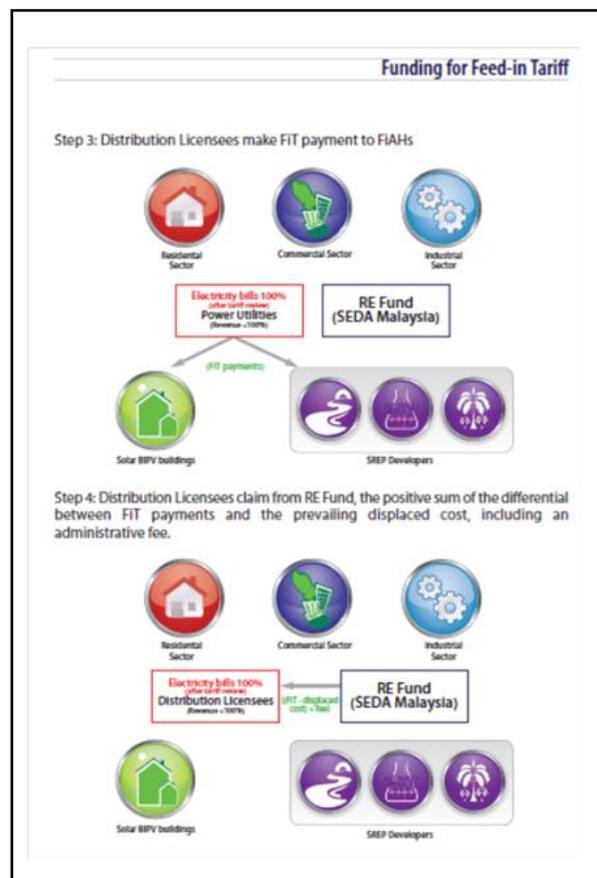
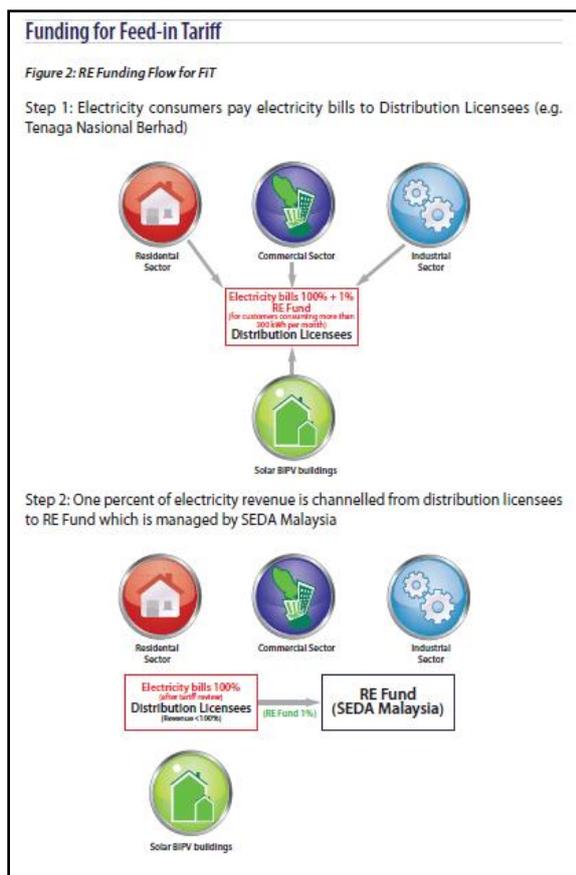
3.0 Sources of fund

RE Fund is currently funded through the following resources:

- a) An initial funding of RM300million from the Treasury;
- b) A 1% surcharge collected from consumers' electricity bill - except for domestic consumers with electricity consumption of less than 300kWh/month or consumers currently paying electricity bill of less than RM77 per month.

Heavy consumers of electricity would contribute more to the RE Fund. It is essentially a polluter's pay concept whereby those who pollute the most, pays the most to the RE Fund. It is a preferred mechanism as it encourages electricity consumers to make conscious efforts to adopt energy efficient measures/lifestyle to reduce their electricity consumption.

The process flow of FiT payment claim by power utility firms/distribution licensees is depicted in the diagram below.



Source: KeTTHA

At the end of August 2013, SEDA has received in total RM427 million from the 1% surcharge collected from electricity consumers. SEDA has disbursed RM47.25 million for FiT payments via power utility firms and RM2.36 million as administrative fee for SEDA and power utility firms. The balance in the RE Fund as at the end of August 2013 is RM685 million¹, inclusive of the initial grant of RM300 million and interest earned from investing the balance of RE Fund. This amount is locked in to ensure payments to the FiAH.

Table 1: RE Fund: Status as at August 2013

	RM million
Collection from 1% surcharge	427.00
Initial funding from Treasury	300.0
Interest from fund investment	13.09
Total	740.09
LESS:	
Payments to FIAHs (via power utility firms)	47.25
Administrative fee	2.36
Others (bank charges, etc)	5.47
Total	55.08
Balance @ August 2013	RM685.01

Source: SEDA

¹ Unaudited accounts

4.0 Target and quotas

Table 2: RE Targets

YEAR	CUMULATIVE TOTAL RE (MW)	SHARE OF RE CAPACITY
2015	985	5.5%
2020	2,080	11%
2030	4,000	17%

Source: KeTTHA

The RE Fund is influenced by a number of factors including the rate and quantum of surcharge on electricity tariff. The 2% surcharge is required based on the projected RE capacity growth as set out in the RE Policy and Action Plan approved by the government in 2010. Additional surcharge will only be required if there is an increase in national RE targets set by the government. SEDA has fixed a total quota of 511MW for various RE resources until end June 2014 - 196MW for the year 2011/2012, 190MW for 2013 and 125MW for 1st half of 2014.

Table 3: Total FiT quota opened from 2011 to 1H2014 (MW)

	2011/2012	2013	1H2014
Biogas	20	20	10
Biogas sewage	10	10	5
Biomass	60	50	25
Solid Waste	20	30	15
Small hydro power	30	30	45
Solar PV < 1MW	16	10	5
Solar PV > 1MW	40	40	20
TOTAL	196	190	125

Source: SEDA

At the end of August 2013, SEDA has approved a total of 2,342 number of FiT applications with a total RE capacity of 513.78MW. Of this total, 205.81MW comprises solar PV application. This constitutes 40% of the total applications approved. A further breakdown revealed that 89% are non-individual applications.

Table 4: RE Application Approved until 31 August 2013

RE RESOURCE	NO. OF APPLICATION	CAPACITY (MW)	% APPROVED
Biogas	17	26.43	5.14
Biomass	18	166.49	32.41
Small hydro	18	115.05	22.39
Solar PV	2,289	205.81	40.06
TOTAL	2,342	513.78	100.00%

Source: SEDA, Parliament of Malaysia

Table 5: Approved Solar PV Applications until 31 August 2013

SOLAR PV	NO. OF APPLICATION	CAPACITY (MW)	% APPROVED
Individual	2,037	22.75	11.05
Non-individual	252	183.06	88.95
TOTAL	2,289	205.81	100.00%

Source: SEDA, Parliament of Malaysia

As for the commissioned RE installation, biomass constitutes 44% of the total RE capacity installed, followed by solar PV at 37%, small hydropower at 14% and biogas at 6%.

Table 6: Commissioned RE Installations until 31 August 2013

RE RESOURCE	NO. OF APPLICATION	CAPACITY (MW)	%
Biogas	4	6.41	5.57
Biomass	5	50.4	43.76
Small hydro	5	15.70	13.63
Solar PV	572	42.66	37.04
TOTAL	586	115.17	100.00

Source: SEDA, Parliament of Malaysia

5.0 Current Development

Based on the above analysis, the solar PV proved to be a popular RE resource. This could be attributed to the attractive FiT rate for smaller capacity solar PV installation which gives a much better returns and ease of entry compared to the other RE resources.

SEDA has recently released 1,500kW of solar PV quota to individuals in three batches. The first 500kW quota under the Solar Home Rooftop Programme was released on 28 August 2013, followed by another 500kW on 4 September and 11 September 2013. There will be no more releases of any solar PV quota for individuals for 2013 after 11 September 2013.

The Solar Home Rooftop Programme is initiated by SEDA to encourage massive public involvement to install solar PV system. From September 2012, owners of landed homes can apply for the allocated 2,000-household quota under this programme. There are several packages offered with private firms:

- i) The Senheng Residential Solar PV System themed, “Green Energy, Green Money” was launched on August 5, 2013. The scheme offers three PV system packages of 4kWp - 12 kWp, with cost from RM40,800;
- ii) Alliance Bank’s Home Complete Plus Solar Panel Financing offers to finance solar PV purchase and installation;
- iii) Bank Muamalat “Smart Green Mortgage Solar PV FiT Plan” offers solar PV finance package.

In another development, there is a change on the degression rate for solar PV. Effective from March 2013, the degression rate for solar PV with installed capacity of more than 24 kW has increased from 8% to 20% while the rate for solar PV with installed capacity of up to 24 kW remains at 8%. As for the bonus criteria, the degression rate remains at 8% except for installation using locally manufactured or assembled solar PV modules and inverter in which the degression rate has reduced to zero. The degression rate takes into account falling solar PV prices.

The annual degression rates of biogas and biomass are maintained between 0.5% - 1.8% (for bonus criteria).

Table 7: Basic FiT Rates for RE resources

DESCRIPTION OF QUALIFYING RE INSTALLATION	FiT RATES (RM per kWh)	
	2013	2014
Biogas		
i) ≤ 4MW	0.3184	0.3168
ii) Above 4MW - 10MW	0.2985	0.2970
iii) Above 10MW - 30MW	0.2786	0.2772
Biomass		
i) ≤10MW	0.3085	0.3069
ii) Above 10MW - 20MW	0.2886	0.2871
iii) Above 20MW - 30MW	0.2687	0.2673
Small hydro power		
i) ≤10MW	0.2400	0.2400
ii) Above 10MW - 30MW	0.2300	0.2300
Solar PV		
i) ≤ 4kW	1.1316	1.0411
ii) Above 4kW - 24kW	1.1040	1.0157
iii) Above 24kW - 72kW	0.9440	0.7552
iv) Above 72kW - 1MW	0.9120	0.7296
v) Above 1MW - 10MW	0.7600	0.6080
vi) Above 10MW - 30MW	0.6800	0.5440

Source: SEDA

Sabah has not implemented FiT yet. Discussions on the method of implementation and payments between the state government and Sabah Electricity Sdn Bhd are still ongoing.

6.0 Performance and accounts of RE Fund

Parliament of Malaysia has a role to play to ensure SEDA manages the RE Fund properly.

RE Act subsection 27 (2) provides that SEDA shall submit the certified statement of accounts and activities reports of RE Fund to Parliament. Subsection 28 (1) on performance audit gives SEDA the legal provision to appoint an auditor to carry out audit on the operation of power utility firms and FiAH to evaluate compliance with the Act.

SEDA utilised e-FiT Online system to improve governance, transparency and openness.

Among the features of *e-FiT* are:

- First-come-first-serve basis;
- Digital listing of successful FiAH and, the amount of quota allocated to the FiAH;
- FiT dashboard to display automatic real-time update of RE quota;

7.0 Programmes for energy efficiency management

FiT is the key for Malaysia to cut dependency on fossil fuel. It, however, has to be fully supported with policies, projects and programmes designed to cut carbon emission and manage energy efficiently to be effective, particularly in sectors including power generation, transport, urban planning, water and waste management, and agriculture. Concurrently, it is also critical to cultivate a culture of making informed decisions to promote efficient energy management to reduce electricity consumption and indirectly it reduces our own carbon footprint.

Among the programmes carried out and initiated by the government to support energy efficient management are:

- a) Efficient Management of Electrical Energy Regulations (2008);
- b) Green Building Index (GBI) and promotion of energy efficiency buildings
- c) Labelling and Star Ratings

The Economic Transformation Programme, National Key Economic Areas (NKEAs) comprising the Entry Point Projects 9 (EPP 9) focuses on improving Malaysia's power and fuel consumption, potentially making firms to be more competitive and it helps households to reduce the electricity bills. The initiatives are:

- i) The government leading by example on energy efficiency practices;
- ii) Stimulating sales of energy efficient appliances;

iii) Partnership between the government and TNB to make co-generation economically viable;

iv) Regulating for better insulation of new and renovated buildings.

v) Encouraging sales of energy efficient vehicles by offering rebates to encourage adoption of hybrid or electric vehicles.

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