



SUSTAINABLE ENERGY DEVELOPMENT AUTHORITY MALAYSIA

RENEWABLE ENERGY DEVELOPMENT & FINANCING OPPORTUNITIES

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**Chief Executive Officer
Sustainable Energy Development Authority Malaysia**



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Outline of Presentation

- Background
- National renewable Energy Policy & Action Plan
- Feed in Tariff
- Renewable Energy Act 2011
- Sustainable Energy Development Authority Act 2011
- FiT Implementation
- Financing RE Projects – your thoughts??

Background



Renewable Energy Development in Malaysia

8TH Malaysia
Plan (2001 -
2005)

- RE as the 5th Fuel
- Implied 5% RE in energy mix

9th Malaysia
Plan
(2006 – 2010)

- **Targeted RE capacity to be connected to power utility grid:**
 - 300 MW – Peninsular Malaysia; 50 MW - Sabah
- **Targeted power generation mix:**
 - 56% natural gas, 36% coal, 6% hydro, 0.2% oil,
 - 1.8% Renewable Energy
- Carbon intensity reduction target: 40% lower than 2005 levels by 2020

RE as of 31st
December
2011

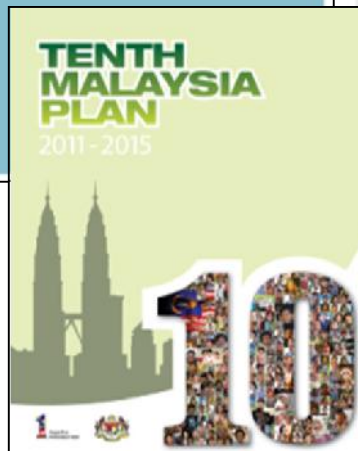
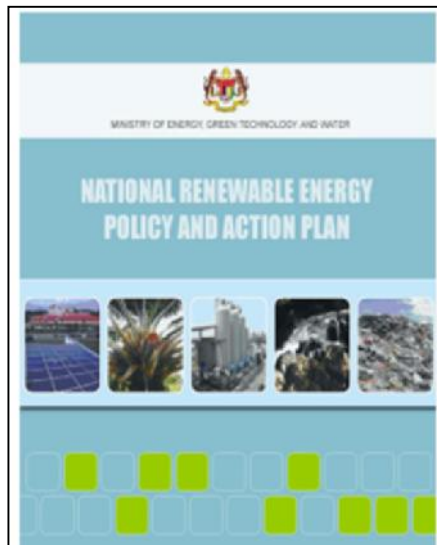
- Connected to the utility grid (as of 2011): **68.45 MW (20% from 9th MP target)**
- Off-grid: >430MW (private palm oil millers and solar hybrid)

Malaysian National RE Policy & Action Plan



Renewable Energy: Government Policies

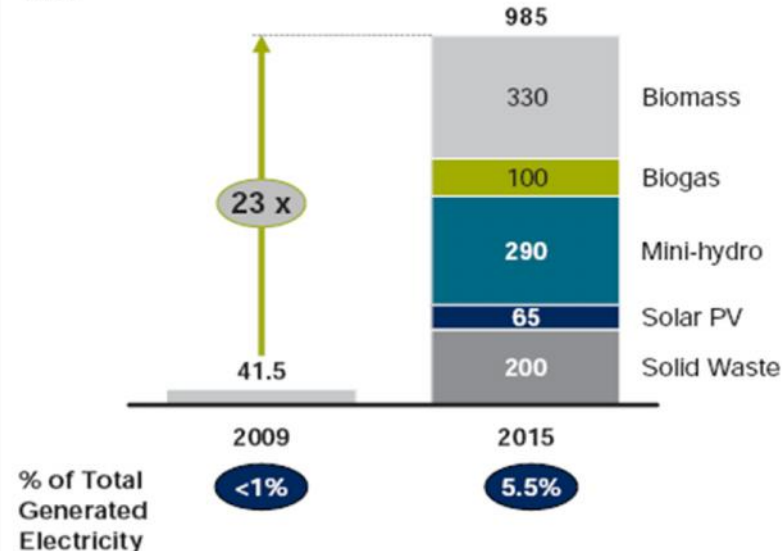
- 2nd April 2010: National Renewable Energy Policy & Action Plan approved by GOM
- 10th Jun 2010: 10th Malaysia Plan (chapter 6)
- 15th Oct 2010: National Budget 2011 (paragraph 34)
- 25th Oct 2010: Economic Transformation Programme (chapter 6)



Renewable energy will increase from <1% in 2009 to 5.5% of Malaysia's total electricity generated by 2015

Moving towards renewable energy replaces the need for fossil-fuel power plants

Planned increase in renewable energy capacity
MW



RE investments will receive a huge push through FiT

- Introduction of Feed-in Tariff (FiT) of 1% to be incorporated into the electricity tariffs of consumers
- Establishment of a Renewable Energy Fund from the FiT to be administered by a special agency under KeTTHA
- This provides an annual CO₂ avoidance of 3.2 million tonnes



Strategic Thrusts of Malaysian National RE Policy

Strategic Thrust 2: Provide Conducive Business Environment for RE

Strategic Thrust 3: Intensify Human Capital Development

Strategic Thrust 1:
Introduce Legal and Regulatory Framework

Strategic Thrust 5: Create Public Awareness & RE Policy Advocacy Programmes

Strategic Thrust 4: Enhance RE Research and Development



Malaysian National Renewable Energy Policy and Action Plan

THRUST 1

- **Introduce Appropriate Legal Framework**
- Feed-in Tariff (FiT)
- RE Fund
- SEDA Malaysia - FiT Implementing Agency

THRUST 2

- **Create Conducive Business Environment for RE**
- Promote RE businesses – SME and manufacturing
- Long term low interest financing
- Fiscal Incentives
- Special Incentives for Locally Developed R&D
- Incentives to Promote Local Content
- RE Centre for SMEs

THRUST 3

- **Intensify Human Capital Development**
- RE in Technical and Tertiary Curricula
- RE Training Institutes
- Centres of Excellence
- Experts to fulfil local and overseas market
- Fiscal relief for RE courses
- Financial incentives for training programmes

THRUST 4

- **Enhance RE R & D**
- Focus R&D – reduce cost of technology & promote wider application
- Coordination & co-operation in technology & economic research bet Government & private sector
- Strong linkages bet local & international research institutes
- Development of RE innovations

THRUST 5

- **Increase Public and Stakeholder Awareness & RE Policy Advocacy**
- Effective & continuous information dissemination
- Relationship with media, NGOs & private entities
- Demonstration & awareness programmes in primary & secondary schools
- Periodic monitoring & evaluation of RE



Malaysian National RE Targets

| Year | Cumulative RE Capacity | RE Power Mix | Cumulative CO ₂ avoided |
|------|------------------------|--------------|------------------------------------|
| 2011 | 68.45 MW | 0.47 % | 0.29 mt |
| 2015 | 985 MW | 6% | 11.1 mt |
| 2020 | 2,080 MW | 11% | 42.2 mt |
| 2030 | 4,000 MW | 17% | 145.1 mt |

Note: RE capacity achievements are dependent on the size of RE fund

- Assumptions:
 - Feed-in Tariff (FiT) implemented
 - 15.6% compound annual growth rate (CAGR) of RE power capacity from 2011 - 2030

FEED-IN TARIFF



Feed-in Tariff (FiT)

- ❑ A mechanism that allows electricity that is produced from **indigenous RE resources** to be sold to power utilities at a **fixed premium price and for specific duration.**

- ❑ Provides a conducive and secured investment environment which will make financial institutions to be comfortable in providing loan with longer period (>15 years).
 - Provides fixed revenue stream for installed system
 - Only pays for electricity produced: promotes system owner to install good quality and maintain the system
 - With suitable degression rate, manufacturers and installers are promoted to reduce prices while enhancing quality



Critical Factors for an Effective FiT Implementation In Malaysia

Malaysia use a legal instrument for FiT implementation via the RE Act 2011

- ✓ access to the grid is guaranteed – utilities legally obliged to accept all electricity generated by RE private producers
- ✓ FiT rates
 - high enough to produce ROI + reasonable profit
 - fixed for a period (certainty & provide clear investment environment)
 - adequate "degression" to promote cost reduction to achieve "grid parity"
- ✓ RE Fund
 - to pay for the FiT rates & guarantee payment for contract period
 - established under the RE Act 2011; initial grant RM300million by GOM
 - source - 1% collection from consumers' electricity bills as decided by GOM in June 2011
 - ✓ Every RM100/Month - additional RM1 for RE
 - ✓ Will not affect low income consumers (<300 kWh/month)
 - ✓ Polluters pay concept
 - ✓ Encourages EE and DSM
- ✓ Implementation by Sustainable Energy Development Authority (SEDA Malaysia)

Renewable Energy Act 2011



Renewable Energy Act 2011

- ❑ RE Act: an Act to provide for the establishment and implementation of a special tariff system to catalyse the generation of renewable energy and to provide for related matters.
- ❑ Outlines provisions for:
 - ✓ FiT mechanism's implementation
 - ✓ Establishment of RE Fund
 - ✓ SEDA Malaysia as implementing agency for FiT mechanism
- ❑ Comprises of 9 Parts and 65 Clauses
- ❑ Enforced on 1st December 2011



Part II - FEED-IN TARIFF SYSTEM (cont)

- ▶ Section 4: Eligibility for participation in feed-in-tariff system
 - ✓ proposes to generate renewable energy from a renewable energy installation $\leq 30\text{MW}$ (or such higher installed capacity as may be approved by the Minister)
 - ✓ meets such other criteria as may be prescribed by the Authority



Part III – Connection, purchase and distribution of RE (cont)

▶ Section 14: Priority of purchase and distribution


When a RE installation has been connected to a supply line connection point, a distribution licensee shall:

- ✓ as priority over the electricity generated from resources other than renewable resources
- ✓ purchase and distribute through the supply line the entire available quantity of RE generated by a RE installation owned by a feed-in approval holder (unless exempted by Authority with having regards to public and private safety).
- ✓ Any contravention is an offence and is liable to a penalty (fine < RM 1million)



Part IV – FEED-IN TARIFF

▶ Section 16: Payment of feed-in tariff

- ✓ feed-in approval holder shall be paid the feed-in tariff by DL via a renewable energy power purchase agreement
- ✓ FiT rates as in Schedule RE Act 

▶ Section 17: Degression of feed-in tariff

- ✓ FiT rate shall be reduced progressively each year based (applicable degression rate in Schedule)



Part V – RE Fund

▶ Section 23: RE Fund

- ✓ A fund to be known as the “Renewable Energy Fund” is established and shall be administered and controlled by the Authority
- ✓ The Fund shall consist of—
 - such sums as may be provided by the Parliament for the purposes of the Fund from time to time;
 - such sums paid to the Authority under subsections 22(4), 24(1) and 24(5);

Sustainable Energy Development Authority (SEDA Malaysia) Act 2011



Part III – Functions & Powers of SEDA Malaysia

▶ Section 15: Functions of SEDA Malaysia includes to:

- advise the Minister & Government Entities on all matters relating to sustainable energy
- to **promote & implement national policy objectives for RE**
- to promote, facilitate & develop sustainable energy
- **implement, manage, monitor & review the Feed-In Tariff system**
- implement sustainable energy laws including the Renewable Energy Act & recommend reforms
- promote private sector investment in sustainable energy sector
- measures to improve public awareness
- act as focal point on matters relating to sustainable energy & climate change matters relating to energy



Members of the Authority



Chairman: Y.B. Tan Sri Dr Fong Chan Onn



Dato' Mohd
Salleh
Bin Mahmud



Dr. Pola Singh



Dato' Kok Soo
Chon



Datuk Loo Took
Gee



Dr. Kamariah
Noruddin



Pn. Badriyah Hj
Abd Malek

FiT Implementation on 1st December 2011



e-FiT Online – Open & Transparent Platform

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ANNOUNCEMENTS

- ▶ International Climate Protection Scholarship by the Alexander von Humboldt-Foundation 24/08/2011
- ▶ New Distance Learning Program (MBA in Renewable Energy and Energy Efficiency) 01/07/2011
- ▶ Passing of RE & SEDA Bills at Dewan Rakyat on 4th & 5th April 2011 02/04/2011
- ▶ Workshop on Subsidiary Legislation Discussion, 21 Apr 2011 01/03/2011

[MORE](#)

LATEST NEWS


FiT DASHBOARD

| FiT Rates | RE Quota | RE Capacity | RE Generation |
|--|------------------------|-------------|---------------|
| Biogas | Biomass | Small Hydro | Solar PV |
| FiT Rates for Biogas (16 years from FiT Commencement Date) | | | |
| Description of Qualifying Renewable Energy Installation | FiT Rates (RM per kWh) | | |
| | 2011 | 2012 | 2013 |
| (a) Basic FiT rates having installed capacity of : | | | |
| (i) up to and including 4MW | 0.3200 | 0.3200 | 0.3184 |
| (ii) above 4MW and up to and including 10MW | 0.3000 | 0.3000 | 0.2985 |
| (iii) above 10MW and up to and including 30MW | 0.2800 | 0.2800 | 0.2786 |
| (b) Bonus FiT rates having the following criteria (one or more) : | | | |
| (i) use of gas engine technology with electrical efficiency of above 40% | + 0.0200 | + 0.0200 | + 0.0199 |
| (ii) use of locally manufactured or assembled gas engine | + 0.0100 | + 0.0100 | + 0.0100 |

- FiT quota is dynamic



e-FiT Implementation Experience

- **The e-FiT was opened for application at 12.01am 1st December 2011**
 - As soon as the system is open for access, the server has recorded incredibly high traffic 
 - more than 6,000 applicants tried to access SEDA Malaysia's portal
 - ✓ to obtain information on how to apply FiT; and
 - ✓ to register & secure FiT quota through e-FiT online system
 - **Quota Reopening**
 - ✓ re-opened for applications on 30th December 2011 in Peninsular Malaysia only
 - ✓ capacity reopened for application
 - 122.47 MW for biomass, small hydro power and solar PV



Annual RE Quota (Up to 2014)

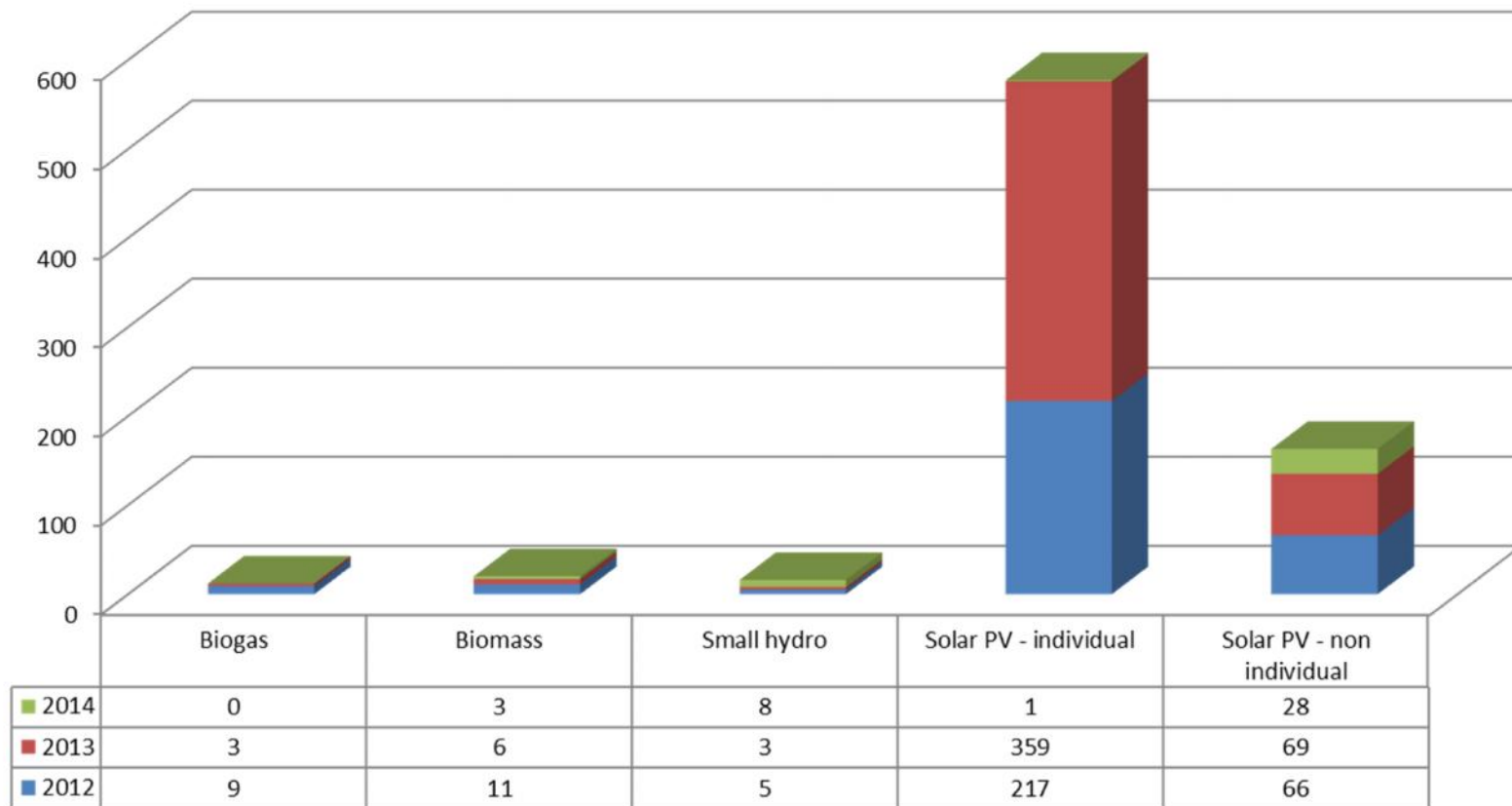
| | Biogas | Biogas - Sewage | Biomass | Solid-Waste | Small Hydro | Solar PV < 1MW | Solar PV > 1MW | Total (MW) |
|---------------|--------|-----------------|---------|-------------|-------------|----------------|----------------|------------|
| Year | MW | MW | MW | MW | MW | MW | MW | |
| 2011/ 2012 | 20 | 10 | 60 | 20 | 30 | 10 | 40 | 190 |
| 2013 | 20 | 10 | 50 | 30 | 30 | 10 | 40 | 190 |
| H1 2014 | 10 | 5 | 25 | 15 | 45 | 5 | 20 | 125 |

Source: www.seda.gov.my



Applications received (as at 31 March 2012)

Applications received (as at 31 March 2012)





Statistic Overall of FiT Application up to 29th February 2012

| | Total | Capacity (MW) |
|-------------------------|-------|---------------|
| Applications received | 743 | 548.86 |
| Approved Applications | 377 | 311.56 |
| Refused Applications | 87 | 162.88 |
| Applications in process | 279 | 74.42 |



e-FiT – status and updates

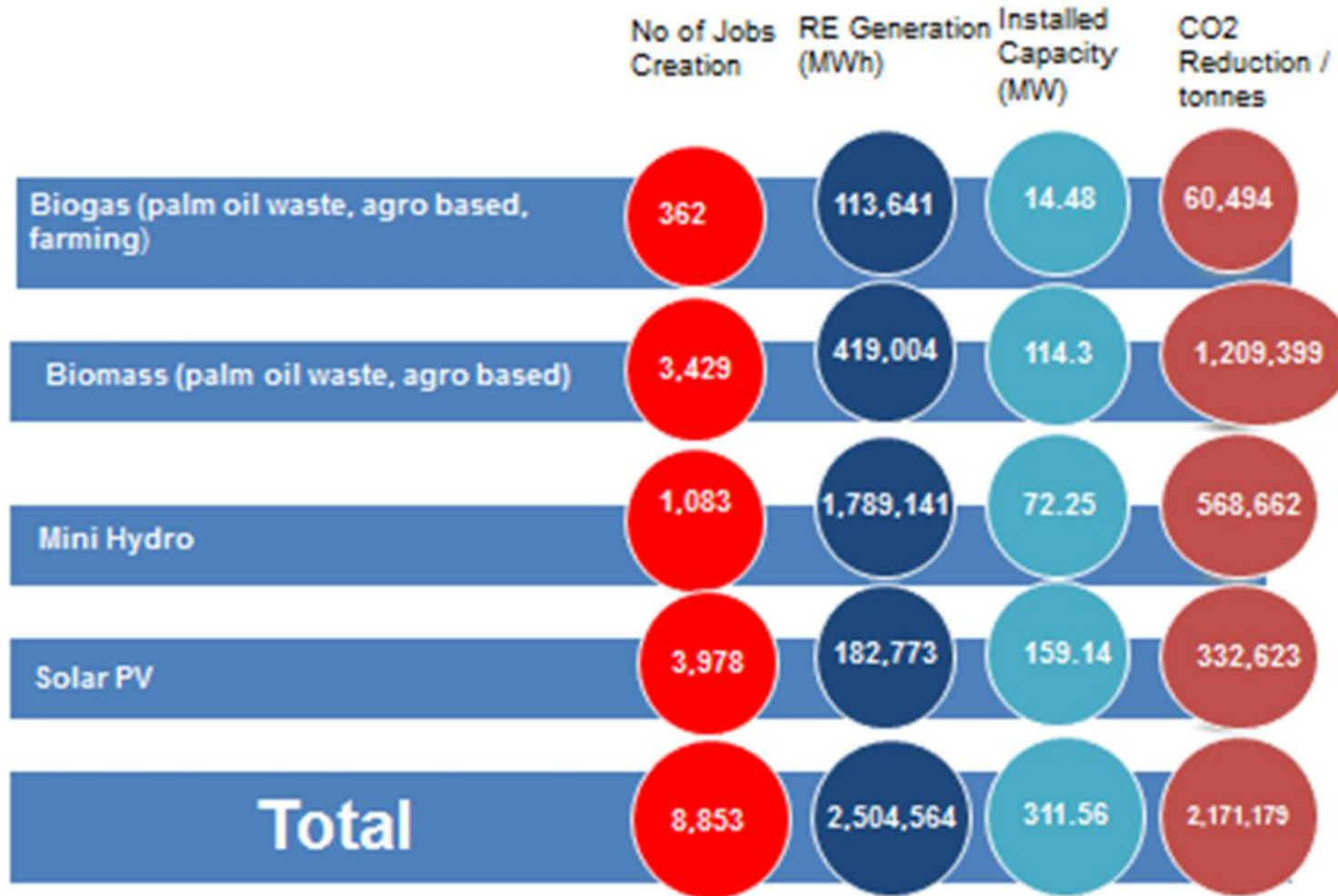
- E-FiT – system enables FiT quota approvals on ‘first come, first served basis’
- upon submission of complete application & document

Status as at 29th February 2012:

| Source | No of Applications | Installed Capacity (MW) | % Installed Capacity |
|--------------|--------------------|-------------------------|----------------------|
| Biogas | 10 | 14.48 | 4.65 |
| Biomass | 8 | 91.80 | 29.46 |
| Small Hydro | 10 | 65.25 | 20.94 |
| Solar PV | 348 | 140.03 | 44.94 |
| Total | 377 | 311.56 | |



e-FiT – status and updates



FINANCING RE PROJECTS



Green Technology Financing Scheme

| | |
|---------------------------------|--|
| Government incentive | Government bear 2% interest rate/profit Government guarantee – 60% of financing approved amount |
| Guarantee fee | 0.5% p.a. from the total guaranteed amount |
| Interest/financing rates | Determined by participating financial institutions |
| Source of funds | Participating financial institutions |
| Implementation agency | (1) Malaysian Green Technology Corporation (MGTC) (2) Credit Guarantee Corporation Malaysia Bhd. (CGC) |
| Application method | <ul style="list-style-type: none"> • Companies are required to submit project proposal/s for technical evaluation to MGTC • Upon passing the technical evaluation - companies may submit application for financing to any participating financial institution. |
| Application dates | Applications are open from 1 January 2010 for a period of 3 years or upon approval of financing up to RM1.5 billion, whichever is earlier. |



GTFS Incentives

| FEATURES | PRODUCER OF GREEN TECHNOLOGY | USER OF GREEN TECHNOLOGY |
|--|--|--|
| Financing size | Maximum: RM50 million per company | Maximum: RM10 million per company |
| Financing tenure | Up to 15 years | Up to 10 years |
| Propose of financing | To finance investments in production of green technologies that meet the Scheme objective | To finance investments in utilisation of green technologies that meet the Scheme objective |
| Eligibility criteria | Legally registered Malaysian -owned companies (at least 51%) in all economic sectors | Legally registered Malaysian - owned companies (at least 70%) in all economic sectors |
| Participating financial institutions (PFIs) | All commercial and Islamic Banks; Development financial institutions (Bank Pembangunan, SME Bank, Agrobank, Bank Rakyat, EXIM & Bank & Bank Simpanan Nasional) | |



GTFS Latest Update until 8th March 2012

| # | Items | No. | RM |
|----------|---------------------------------------|------------|----------------------|
| 1 | No. of application (Overall) | 195 | NA |
| 2 | Total of GC approved (Overall) | 172 | 3,233,848,279 |
| - | Energy | 110 | 2,106,548,560 |
| | RE | 79 | 1,661,416,735 |
| | EE | 31 | 445,131,825 |
| 3 | Total of secured financing | 41 | 781,709,826 |
| - | Energy | 25 | 514,838,166 |
| | RE | 16 | 375,453,041 |
| | EE | 9 | 139,385,125 |

Source by: GreenTech Malaysia



Reasons why RE Projects Financing Rejected by Bankers/Financiers

1. New registered company
2. Low paid up capital
3. Weak of up stream and down stream supply chain
4. Lack of project track record
5. RE is perceived as new technologies
6. Certified applicants have low Debt-Service Coverage Ratio (DSCR).



Proposed Way forward for Financing RE Projects

- 1. Local/Offshore bank participation**
- 2. Fast approval**
- 3. Attractive terms**
- 4. Technical reference**
 - **technology accessibility**
- 5. Bankability - FiT**
 - **through REPPA (Guaranteed payment)**
 - **specific period of agreement**



Proposed Way Forward for Financing RE Projects..contd

Special Fund for Renewable Energy Projects

- ✓ GTFS - limited to only RM50 million
 - insufficient
 - RE projects require more funding eg biomass, hydro, solar
- ✓ RE projects is up to 30MW (other than solar) & required higher capital
- ✓ RE Project Funds from local banks??
- ✓ Assessment is tailor made for RE projects and not through conventional method.
- ✓ Third party/ technical reference to assist banks/financial institutions
 - SEDA Malaysia could assists in evaluation



Proposed Way Forward for Financing RE Projects... cont'd

RE Loan Package

i. Loan package for Individuals (house owners)

- 10% down payment with zero entry cost
 - ✓ focus to medium income (2-6 kW PV System)
- attractive interest rate
- appropriate loan tenure (project lifecycle >25 years)
- Standardized REPPA as a collateral (guarantee by the Government)

ii. Loan package for Companies (RE power plant)

- Project scale between RM10mil I- RM100mill or more
- Expedited processing of RE projects less than RM100mil
- Maximum repayment terms + attractive rates
- Appropriate loan tenure
- Standardized REPPA as a collateral (guarantee by the Government)



FiT Payment & Duration- Example

FiT payment is calculated based on actual kWh reading by the revenue meter

* (new kWh reading 'minus' last kWh reading) x FiT rate]

| RE installations | Biogas | Biomass | Small Hydro | Solar PV |
|---|----------------------------|------------------------------|------------------------------|------------------------|
| RE installed capacity [A] | 4 MW | 10 MW | 10 MW | 6 kW |
| RE generation/month [B] | 2,044 MWh/month | 5,110 MWh/month | 4,166.67 MWh/month | 600 kWh/month |
| FiT rate [C] | RM 0.34 per kWh | RM 0.33 per kWh | RM 0.24 per kWh | RM 1.46 per kWh |
| FiT duration [D] | 16 years | 16 years | 21 years | 21 years |
| FiT payment by TNB to FIAH per month = [C x B] | RM 694,960 per month | RM 1,686,300 per month | RM 1,000,000 per month | RM 876 per month |
| Capex | RM 40 mil | RM 90 mil | RM 90 mil | RM 90,000 |
| Simple Payback Period | 4.8 | 4.5 | 7.5 | 8.6 |



RE Industry Directory – Open for listing (Category: Financial Institutions)

Home » Directory » RE Industry Directory

This renewable energy (RE) Industry Directory listing is designed for RE related businesses. It is intended only serve as a reference or 'yellow pages' to source for contact information in the RE sector.

[ALL](#) [A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#) [Y](#) [Z](#)

Category : [PLEASE SELECT]
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- ABB MANUFACTURER PETALING JAYA, SELANGOR DARUL EHSAN
- ALPHA AUTOMATION (SEL) SDN BHD SHAH ALAM, SELANGOR DARUL EHSAN
- ARUS SPEKTRUM SDN BHD SHAH ALAM, SELANGOR DARUL EHSAN
- BARY SOL (M) SDN BHD SHAH ALAM, SELANGOR DARUL EHSAN
- BESTIUM TECHNOLOGIES SDN BHD PETALING JAYA, SELANGOR DARUL EHSAN
- BIOWATER CLIMATE CATE SDN.BHD. KUALALUMPUR, W.P. KUALALUMPUR

- More than 150 companies have registered
- Reference on RE business in Malaysia
- Categories available:
 - ✓ Consultancy
 - ✓ Manufacturer
 - ✓ service provider
 - ✓ financial institution
 - ✓ equipment supplier, etc.



Thank you for your attention

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Presint 4,
62100 Putrajaya,
Malaysia.
Phone : +603-8870 5800
Email: fit@seda.gov.my
Web: www.seda.gov.my





Feed-in Tariff Rates

| Technology / Source | FiT Duration | Range of FiT Rates (RM/kWh) | Annual Degression |
|--|--------------|-----------------------------|-------------------|
| Biomass (palm oil waste, agro based) | 16 | 0.27 – 0.35 | 0.5% |
| Biogas (palm oil waste, agro based, farming) | 16 | 0.28 – 0.35 | 0.5% |
| Mini Hydro | 21 | 0.23 – 0.24 | 0% |
| Solar PV & PP | 21 | 0.85 – 1.78 | 8% |
| Solid waste & Sewage | 16 | 0.37 – 0.45 | 1.8% |





RE Law Schedule: Solar PV

| First Column | Second Column | Third Column | Fourth Column | Fifth Column |
|--------------------|--|--|---|-------------------------|
| Renewable resource | Description of qualifying renewable energy installation | Feed-in tariff rate (in ringgit per kilowatt hour) | Effective period (commencing from the feed-in tariff commencement date) | Annual degredation rate |
| Solar photovoltaic | (a) Renewable energy installation having an installed capacity of: | <i>Basic feed-in tariff rate</i> | | |
| | (i) up to and including 4 kilowatts | 1.23 | 21 years | 8.0 % |
| | (ii) above 4 kilowatts, and up to and including 24 kilowatts | 1.20 | 21 years | 8.0 % |
| | (iii) above 24 kilowatts, and up to and including 72 kilowatts | 1.18 | 21 years | 8.0 % |
| | (iv) above 72 kilowatts, and up to and including 1 megawatt | 1.14 | 21 years | 8.0 % |
| | (v) above 1 megawatt, and up to and including 10 megawatts | 0.95 | 21 years | 8.0 % |
| | (vi) above 10 megawatts, and up to and including 30 megawatts | 0.85 | 21 years | 8.0 % |





RE Law Schedule: Solar PV .. cont

| First Column | Second Column | Third Column | Fourth Column | Fifth Column |
|--------------------|--|---|---|------------------------|
| Renewable resource | Description of qualifying renewable energy installation | Feed-in tariff rate (in ringgit per kilowatt hour) | Effective period (commencing from the feed-in tariff commencement date) | Annual depression rate |
| | (b) Renewable energy installation having any one or more of the following criteria in addition to (a) above: | <i>Bonus feed-in tariff rate in addition to basic feed-in tariff rate</i> | | |
| | (i) use as installations in buildings or building structures | + 0.26 | 21 years | 8.0 % |
| | (ii) use as building materials | + 0.25 | 21 years | 8.0 % |
| | (iii) use of locally manufactured or assembled solar photovoltaic modules | + 0.03 | 21 years | 8.0 % |
| | (iv) use of locally manufactured or assembled solar inverters | + 0.01 | 21 years | 8.0 % |





E-FiT Online System

