NS-224 - Implementation of Feed-in Tariff Mechanism in Malaysia

Malaysia

NAMA for Recognition

A Overview

A.1 Party	Malaysia
A.2 Title of Mitigation Action	Implementation of Feed-in Tariff Mechanism in Malaysia
A.3 Description of mitigation action	Recognising and taking advantage of its rich renewable sources of energy, Malaysia embarked on active renewable energy (RE) development in 2001 through designating RE as an additional fifth fuel in the national energy mix of oil, gas, coal and hydropower, in what was known as the Five-Fuel Policy introduced under the 8th Malaysia Plan (2001-2005). The core focus of the policy was to supplement the country's energy sources to include contribution from RE, thereby reducing its dependence on depletable fossil fuels and enhancing its energy security. The Small Renewable Energy Power (SREP) Programme was launched in the same year as one of the initiatives to stimulate RE activities, where the principle adopted was to leverage on the market forces to deliver the intended outcomes towards RE electricity generation for supply to the grid. Based on the key lessons learnt from and the challenges encountered by this policy mechanism that a 'business-as-usual' approach was not sustainable, appropriate nor productive, the National Renewable Energy Policy and Action Plan was officially launched in 2010 to map out the design for an effective policy framework. Subsequently, the Renewable Energy Act (Act 725), which was gazetted and came into force in 2011, ushered in the Feed-in Tariff (FiT) scheme which was aimed at augmenting the share of RE in the power generation fuel mix from indigenous RE sources, so as to enhance national electricity supply security and sustainable socio-economic development. Concomitantly, the Sustainable Energy Development Authority of Malaysia (SEDA Malaysia), a statutory body incorporated pursuant to the Sustainable Energy Development Authority Act 2011 (Act 726), was established to administer and manage the implementation of the FiT mechanism. The geographical regions covered by the scheme include Peninsular Malaysia, Sabah and the Federal Territory of Labuan. Sarawak does not participate in the scheme as it has its own system of electricity regulation. The renewable sources eligible under the FiT scheme are as set out in the First Column of the Schedule of Act 725, and they are comprised of biogas (agroindustrial waste and landfill gas), biomass (agrowaste and municipal solid waste), small hydropower, solar photovoltaic and geothermal. It is stipulated that these must be indigenous renewable sources and must not be imported from other

countries.

Under this mitigation action which provides a legal framework for grid-connected RE generation, Distribution Licensees (licensed electricity distribution entities) are obliged to purchase from Feed-in Approval Holders (individuals or companies who hold feed-in approval certificates issued by SEDA Malaysia) the electricity generated from eligible renewable sources at the respective set FiT rates and for specific durations. The FiT mechanism, financed by the Renewable Energy Fund established under Act 725 and sustained by additional surcharge on electricity tariffs collected by Distribution Licensees, is a fixed premium rate payable for each unit of RE sold to the Distribution Licensee, and it differs for different renewable sources and installed capacities. A bonus FiT rate applies when the criteria for the bonus conditions are met. The duration during which the RE electricity can be sold and paid with the FiT rate is based on the characteristics of the renewable sources and the applied technologies. Under the scheme, the duration (FiT Effective Period) is 16 years for biomass and biogas, and 21 years for small hydropower, solar photovoltaic and geothermal technologies.

This regulated mitigation action is expected to bring about positive impact not only on the accelerated and sustained growth of RE's share in the power sector's fuel mix, but also on the advancement of RE as a viable and sound long-term investment in the energy industry through guaranteeing direct access of RE to the grid and setting a favourable price. The scheme targets to achieve total approved RE capacity for grid connection to reach 2,080 MW generating 11.3 GWh/year, accounting for 11% of total electricity generation in 2020 as stipulated under the National Renewable Energy Policy and Action Plan 2010.

A.4 Sector

- [X] Energy supply
- [X] Residential and Commercial buildings
- [X] Agriculture
- [X] Waste management
- [ ] Transport and its Infrastructure
- [X] Industry
- [ ] Forestry
- [ ] Other

A.5 Technology

- [X] Bioenergy
- [ ] Energy Efficiency
- [X] Hydropower
- [ ] Wind Energy
- [ ] Carbon Capture and Storage
- [X] Land fill gas collection
- [X] Cleaner fuels
- [X] Geothermal
- [X] Solar Energy
- [ ] Ocean Energy
- [ ] Low till / No till
- [ ] Other

A.6 Type of action

- [X] National/ Sectoral goal
- [ ] Strategy
- [X] National/Sectoral policy or program
- [ ] Project: Investment in machinery
- [ ] Project: Investment in infrastructure
- [ ] Project : other
- [ ] Other

A.7 Greenhouse gases covered by the action

- [X] CO2
- [ ] N2O
- [ ] PFCs
- [X] CH4
- [ ] HFCs
- [ ] SF6

☐ Other	

B National Implementing Entity

B.1.0	Name	Sustainable Energy Development Authority of Malaysia
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B.1.9	Contact Person 3	
B.1.10	Address	
B.1.11	Phone	
B.1.12	Email	
B.1.13	Comments	

C Expected timeframe for the implementaion of the mitigation action

C.1	Number of years for completion	30
C.2	Expected start year of implementation	2011

D Currency

D.1	Used Currency	AED Conversion to USD: 0

E Cost

E.1.1	Estimated full cost of preparation
E.1.2	Comments on estimated full cost of preparation
E.2.1	Estimated full cost of implementation
E.2.2	Comments on estimated full cost of implementation

MYR 18.231 billion

(a) The estimated implementation cost is calculated purely based on the tariff, namely the committed expenses to be paid to the Feed-in Approval Holders (FiAHs) throughout the duration of approved FiT Effective Period equivalent to the respective Renewable Energy Power Purchase Agreements (REPPAs), i.e. 21 years (for small hydropower, solar photovoltaic and geothermal projects) or 16 years (for biomass and biogas projects), which include the positive sum of the differential between FiT payments and the prevailing displaced cost, including administrative fees payable to the Distribution Licensees and the National Implementing Entity.

(b)The cost is estimated based on projected grid-connected RE electricity generation by FiAHs and proposed RE Quota.

(c) In calculating the estimated costs, the following assumptions are considered:

	(i) The displaced cost is increasing by 5% every two years; (ii) Administrative fees are fixed at 2% and 3% of the recovery payment for the National Implementing Entity and the Distribution Licensees respectively.
E.3.1 Estimated incremental cost of implementation	
E.3.2 Comments on estimated incremental cost of implementation	

F Estimated emission reductions

F.1 Amount	113.341
F.2 Unit	MtCO2e
F.3 Additional information (e.g. if available, information on the methodological approach followed)	Actual emission reductions achieved (2012-2014): 0.593 MtCO2e Estimated emission reductions (2015-2041): 112.748 MtCO2e Total emission reductions (actual and estimated) (2012-2041): 113.341 MtCO2e (a) In quantifying emission reductions achieved, the following methodological approach is adopted: (1) RE electricity generation (EGRE) is based on statements of claims on sales by all Feed-in Approval Holders submitted by Distribution Licensees for recovery from the Renewable Energy Fund and represents only the amount exported to the grid, but not including generation used for auxiliary power. (2) Emissions of the displaced grid electricity are computed by applying the most recent regional carbon emission baselines (EFCO2,grid) of grid-connected electricity generation published by the Malaysian Green Technology Corporation (MGTC) on an annual basis. ER = EGRE*EFCO2,grid (3) This mitigation action covers the Peninsular Malaysia and the Sabah electricity grids only. As of the verification date of this submission, the following grid electricity carbon emission baselines for 2012, being the most recent published by MGTC, are applied: EFCO2,grid Peninsular Malaysia = 0.741 tCO2e/MWh; EFCO2,grid Sabah (including Federal Territory of Labuan) = 0.546 tCO2e/MWh. (4) The start date of implemention of the mitigation action was 2011-12-01. RE electricity generated under the mitigation action was supplied to the grid commencing 2012. The actual emission reductions achieved were based on RE electricity generated and supplied to the grid for the period from 2012 to 2014-12-31. (b) For the period from 2015-01-01 to 2041, the estimated emission reductions are calculated as follows: (1) Projected RE electricity generation is estimated for different types of RE sources, namely biogas (agroindustrial waste and landfill gas), biomass (agrowaste and municipal solid waste), small hydropower, solar photovoltaic and geothermal, by applying the respective internal default values. (2) For FiT projects already in operation, the projected RE electricity generation is estimated based on the approved Declared Annual Availability in MWh/year for each year of operation to the end of the approved FiT Effective Period. (3) For approved FiT projects yet to commence operation, the projected RE electricity generation is estimated based on the approved Declared Annual Availability in MWh/year from the approved FiT Commencement Date to the end of the approved Effective Period. (4) In addition to (b)(2) and (b)(3), projected RE

	electricity generation is estimated based on proposed RE Quota to be made available for FiT applications and to be set in line with the targets of the FiT scheme design. It is assumed that all proposed RE Quota offered for applications will be fully taken up. (5) In calculating the estimated emission reductions, the most recent published regional grid electricity emission baselines as described in (a)(3) are applied.

G Other indicators

G.1 Other indicators of implementation	(a) Total approved feed-in capacities (MW); (b) Total commissioned and operational capacities (MW). (c) Total revoked, refused and surrendered applications (MW) (d) Total actual RE electricity generated by Feed-in Approval Holders and supplied to the grid as submitted by Distribution Licensees to SEDA Malaysia (kWh).

H Other relevant information

H.1 Other relevant information including co-benefits for local sustainable development	• Contribution towards reducing consumption of fossil fuels. • Rationalised RE equipment and generation costs. • Creation of long-term employment and skilled workforce in the RE industry.

I Relevant National Policies strategies, plans and programmes and/or other mitigation action

I.1 Relevant National Policies	• National Renewable Energy Policy and Action Plan 2010: The policy strives to enhance the utilisation of indigenous RE resources to contribute towards national electricity supply security and sustainable socio-economic development. • Renewable Energy Act 2011: The act provides for the establishment and implementation of a special tariff system to catalyse the generation of RE, ushering in the Feed-in Tariff (FiT) scheme aimed at augmenting the share of RE in the power generation fuel mix from indigenous RE sources. • Sustainable Energy Development Authority Act 2011: The act provides for the establishment of the Sustainable Energy Development Authority of Malaysia to administer and manage the implementation of the FiT mechanism and specifies its functions and powers and other related matters. • National Green Technology Policy 2009: The policy aims to promote green technology as a driver to accelerate the national economy and enhance sustainable development. • Oil, Gas and Energy National Key Economic Area-Entry Point Project 10 (NKEA-EPP10) under Malaysia's Economic Transformation Programme (ETP) - Building up renewable

energy and solar power capacity: To gear towards adopting alternate energy sources to limit Malaysia's dependence on fossil fuels.

- Palm Oil National Key Economic Area-Entry Point Project 5 (NKEA-EPP5) under the ETP - Developing biogas at palm oil mill: The initiative is targeted at 100% of palm oil mills in the country to implement biogas capture projects by 2020, and to utilise the recovered methane to generate electricity for supply to the national grid or for on-site consumption.

- National Policy on Climate Change 2009: The policy aims at, inter alia, mainstreaming climate change through wise management of resources and enhanced environmental conservation resulting in strengthened economic competitiveness and improved quality of life.

I.2 Link to other NAMAs

J Attachments

J Attachments

Title	Description
Letter_KeTTHA.pdf	Letter of Support - Ministry of Energy, Green Technology and Water Malaysia
Letter_NRE.pdf	Letter of Support - Ministry of Natural Resources and Environment Malaysia

J.1 Attachment description

J.2 File

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