

# THE CDM / SUSTAINABLE ENERGY MARKET IN MALAYSIA

WAN NADIA BINTI KAMARUDIN

COPENHAGEN, DENMARK

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- Malaysia is a Party to the United Nations Framework on Climate Change and has ratified the Kyoto Protocol on 4 September 2002.
- The Kyoto Protocol entered into force on 16th of February 2005.



## National Energy Policy (1979)

- Supply Objectives
- Utilisation Objectives
- Environmental Objectives

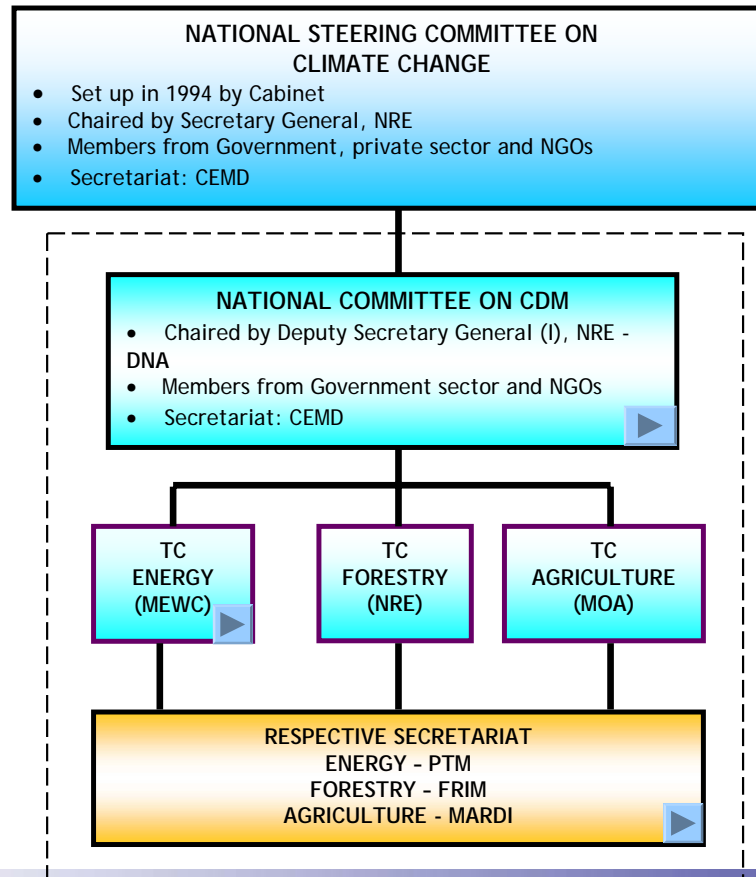
## Four-Fuel Diversification Policy (1981)

- oil, hydro, gas and coal

## Fifth Fuel Policy (2005)

- include renewable energy (RE) as the fifth fuel to supplement energy supply from conventional energy resources.

# CDM Institutional Framework



DNA: Designated National Authority

CEMD: Conservation and Environmental Management Division

MEWC: Ministry of Energy, Water and Communications

NRE: Ministry of Natural Resources and Environment

MOA: Ministry of Agriculture

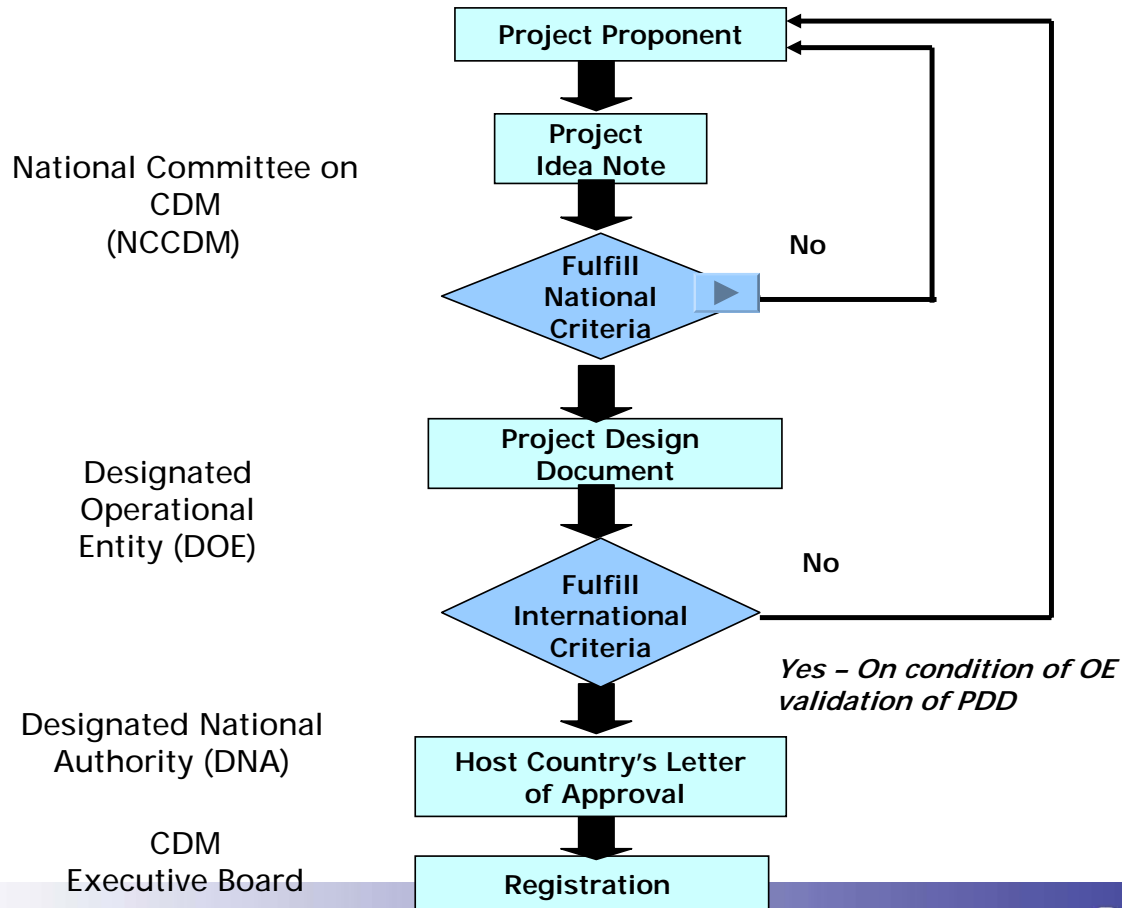
TC: Technical Committee

PTM: Pusat Tenaga Malaysia

FRIM: Forest Research Institute Malaysia

MARDI: Malaysian Agricultural Research and Development Institute

# Approval Process for CDM Projects in Malaysia



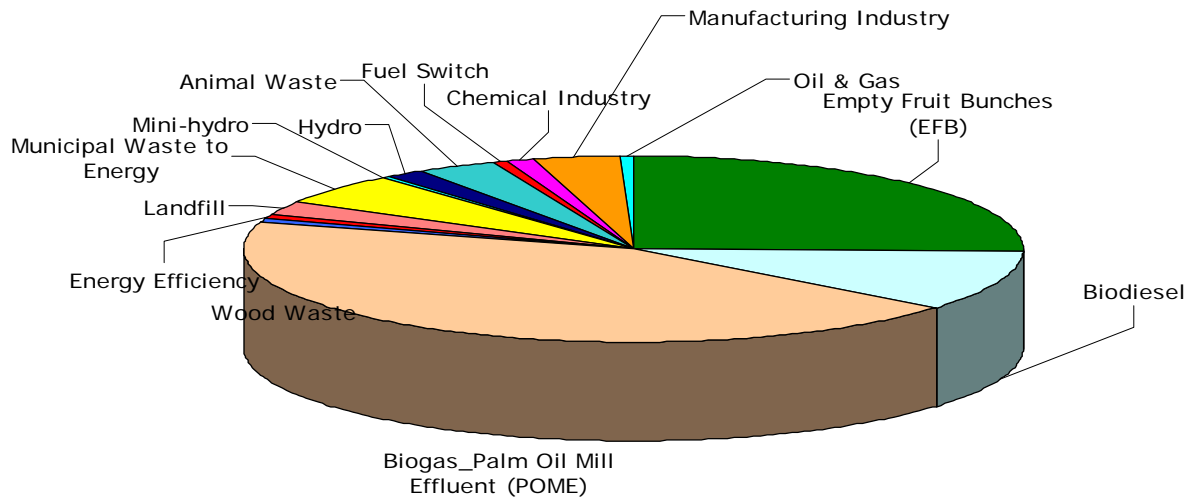
# CDM Development in Malaysia

Application year (as of February '08)	2002	2003	2004	2005	2006	2007	2008
Number of Projects	3	2	9	25	21	40	4
Potential Tonnes of CO2-eq/year	93,915	62,190	866,758	2.5million	2.6million	9.2 million	843,759

Status Projects February'08	PIN	PDD
Number of Projects	48	61

- 27 Projects are given Host Country Approval
- As of February '08, 26 Energy Projects are registered with CDM EB

# Malaysia CDM Project Type as of Feb.08



# CDM Potential Projects (Energy)

Sector	Types of Projects
Renewable Energy	<ul style="list-style-type: none"><li>▪ Biomass power generation; on-grid and off-grid</li><li>▪ Biogas</li><li>▪ Solar: Solar water heating; solar photovoltaic system</li><li>▪ Hydro: Mini-hydro power</li></ul>
Energy Efficiency Improvement	<ul style="list-style-type: none"><li>▪ Improving efficiency in electricity production; improving combined heat and electricity production</li><li>▪ Improved boilers; more efficient process heat and steam systems</li><li>▪ Fuel switching</li></ul>
Waste Management	<ul style="list-style-type: none"><li>▪ Power and heat production from wastes</li><li>▪ Gas recovery from landfills</li><li>▪ Anaerobic waste water treatment (biogas energy)</li></ul>

# CDM Potential Projects (Energy)

Sector	Types of Projects
Oil and Gas	<ul style="list-style-type: none"><li>▪ Gas Flaring – Improvement on system efficiency</li><li>▪ Venting – Improvement on the operation efficiency</li><li>▪ Carbon Capture and Storage</li></ul>
Transport	<ul style="list-style-type: none"><li>▪ Biofuels</li><li>▪ Biodiesel</li><li>▪ Efficient transport system</li><li>▪ Programmatic approach on transport in urban system</li></ul>
Others	<ul style="list-style-type: none"><li>▪ Domestic and Commercial Sector EE</li><li>▪ Larger industrial EE project</li></ul>

# SET Opportunities

- SET/RTD/technology transfer priorities areas are:
- Biogas from biomass (palm oil mill effluent);
- CHP Plants (palm oil residues, rice husks);
- RES for energy efficiency improvements;
- Sustainable energy technology (SET) for biomass, e.g boiler and fuel handling system
- Engineering facilities for hydropower project

# Potential of CDM to Assist SREP Projects

- Potential Volume of CERs, MW for different types of SREP Projects and the power plant technologies

Project type	CERs per year in 2010	MW electricity as SREP	Power plant technology
<b>Biogas POME + animal manure</b>	5,900,000	190 MW	Gas Engine (40% efficiency)
<b>Landfill gas</b>	3,700,000	45 MW	Gas Engine (40% efficiency)
<b>Reduction of gas flaring from oil production</b>	4,600,000	N/A	N/A
<b>Mini hydro</b>	70,000	25 MW	Turbine (60-90 % efficiency)
<b>Biomass CHP</b>	380,000	90 MW	Boiler and Steam Turbine (23% efficiency, 40barg, 520degC)
<b>Other projects<sup>6</sup></b>	3,150,000	N/A	N/A
<b>Total</b>	<b>17,800,000</b>	<b>350 MW</b>	

## **Companies providing renewable energy and energy conservation services:**

- Import duty and sales tax exemption for equipment used in the related project which are not produced locally.
- These incentives are for applications received from 28 October 2000 until 31 December 2010.
- Companies are required to implement their projects within one year from the date of approval of the incentive.

## **Companies which incur capital expenditure for conserving energy for own consumption**

- Import duty and sales tax exemption on equipment used in energy conservation which are not produced locally.
- Incentive is applicable for applications received by the Malaysian Industrial Development Authority (MIDA) from 1 October 2005 until 31 December 2010

# Potential of Methane Emissions from Waste Sectors

- Total methane emissions from the waste sectors analysed is approximately 1.3 million metric tons (mT) per year
- The most significant methane emission sources are landfill gas from municipal solid waste (53%), followed by biogas from Palm Oil Mill Effluent (POME - 38%)
- Less significant sources in terms of total potential include swine manure (6%) and industrial effluent (3%).
- The total carbon dioxide (CO<sub>2</sub>) equivalent for methane emissions is estimated to be around 27million mT
- The total potential certified emission reduction units (CERs) within the waste sectors
- analysed is between the ranges of 9 -10 million CERs per year. Among these potential
- CERs, POME biogas projects emerge as the most promising sector (52%) where landfill gas is second (38%).

# T@W Facilitation Workshop



- Organized on 27-28 February 2008
- Participated by 80 participants
- Participants background (project developers, CDM consultants, local manufacturers, palm oil millers, and association of various industries)

# T@W Facilitation Workshop

## B2B Meetings



## B2B Meetings (Outcome)

### Carbon fund

- CDM project cycle and process
- Hydro project availability
- Financing
- Price of CERs
- Equity Provider

## B2B Meetings (Outcome)

### Technology Providers

- Gas cleaning technologies
- Different technologies of different waste water treatment
- EU experiences and know-how
- Low temperature conversion technologies for biomass
- Biogas technologies
- Biogas for superheater boiler for steam generation
- Gas monitoring and measurement systems
- Special know-how in Europe combined with Chinese experts (for Hydropower project assistance in East of Malaysia)

# Conclusion

- RE projects contributes towards sustainable development objectives of Malaysia
- Current CDM potential in Malaysia associated with energy – biomass, biogas, hydro and waste management – landfill gas, MSW, Composting
- Opportunities for EU companies to promote new innovative, environmental friendly technologies include biomass and biofuel technologies

# Thank You

**Our Function :**  
PTM is the agent for public & private energy sectors

Pusat Tenaga Malaysia  
**Malaysia One Stop Energy Centre**

12:55 AM Monday 5th September 2005

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**Main Content:**

- Publications:** BIOGEN, Building Integrated Photovoltaic, Regional Projects
- PTM Membership Updates:** Currently we have a total of 102 Members:
  - 60 Corporate Members
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- Upcoming Events:**
  - National Convention for Energy Professional 2005: Achieving Sustainable Development Through Fossil Fuel Conservation**  
Venue: Nirwana Ballroom 1, Crowne Plaza Mutiara Hotel  
Date: 15th September 2005
  - MBIPV - Bulding Integrated Photovoltaic (BiPV): Architecture, Engineering & Standards**  
Venue: Hilton Kuala Lumpur  
Date: 12th September 2005 (1day seminar)  
To participate please download this brochure...
  - MBIPV - Bulding Integrated Photovoltaic (BiPV): Policy & Financial Frameworks Promoting Sustainable Photovoltaic (PV) Markets**  
Venue: Hilton Kuala Lumpur

**Bottom Row:**

- New PTM Building (Zero Energy Office)
- Malaysia Industrial Energy Efficiency Improvement Project (MIEEIP)
- Biomass Generation & Co-generation in Palm Oil Mill in Malaysia (Biogen)
- Malaysia Building Integrated Photovoltaic (BiPV) Technology Application Project

## Pusat Tenaga Malaysia

No. 2, Jalan 9/10,

Persiaran Usahawan,

Seksyen 9,

43650 Bandar Baru Bangi,  
Selangor, Malaysia

Website: [www.ptm.org.my](http://www.ptm.org.my)

E-mail: [info@ptm.org.my](mailto:info@ptm.org.my)



# T@W Facilitation Workshop



## B2B Meetings

<b>EU Partners</b>	<b>Local Companies</b>
Mr Lars Moller Energy Consulting Network	Firepower, TNB Research, Tenaga Nasional Berhad
Ms K. Usha Rao KfW Carbon Fund	Golden Hope, Aquarius Systems, Royal Danish Embassy, South Pole, Enercon (BERtion), TNB Research, Eico Ideal, and Mitsubishi Corporation
Mr Daniel Caspari ZREU	Johor SIC, Eco-Ideal, BioX Carbon, GHW Waters, Firepower, Petronas, PTM

# T@W Facilitation Workshop



## B2B Meetings

<b>EU Partners</b>	<b>Local Companies</b>
Mr Karl Kristian Malling Granov, Confederation of Danish Industry	Royal Danish Embassy, Clement Leong, Firepower, JSIC
Ms Patricia Cardoso Eco Progresso	Eco-Ideal