Pusat Tenaga Malaysia

Sustainable Energy Development

# ENERGY SECTOR EMBRACING CLIMATE CHANGE

by

Pusat Tenaga Malaysia

National Conference on Climate Change
Preparedness Towards Policy Changes

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# MALAYSIA'S ENERGY POLICIES

Malaysia Energy Centre

1. Petroleum Development Act 1974
- Entrusts Petronas with the exclusive rights of ownership, exploration and production of oil and gas resources

2. National Petroleum Policy 1975 *Regulates the oil and gas industry*

3. National Energy Policy 1979
Supply, Utilisation and Environmental Objectives

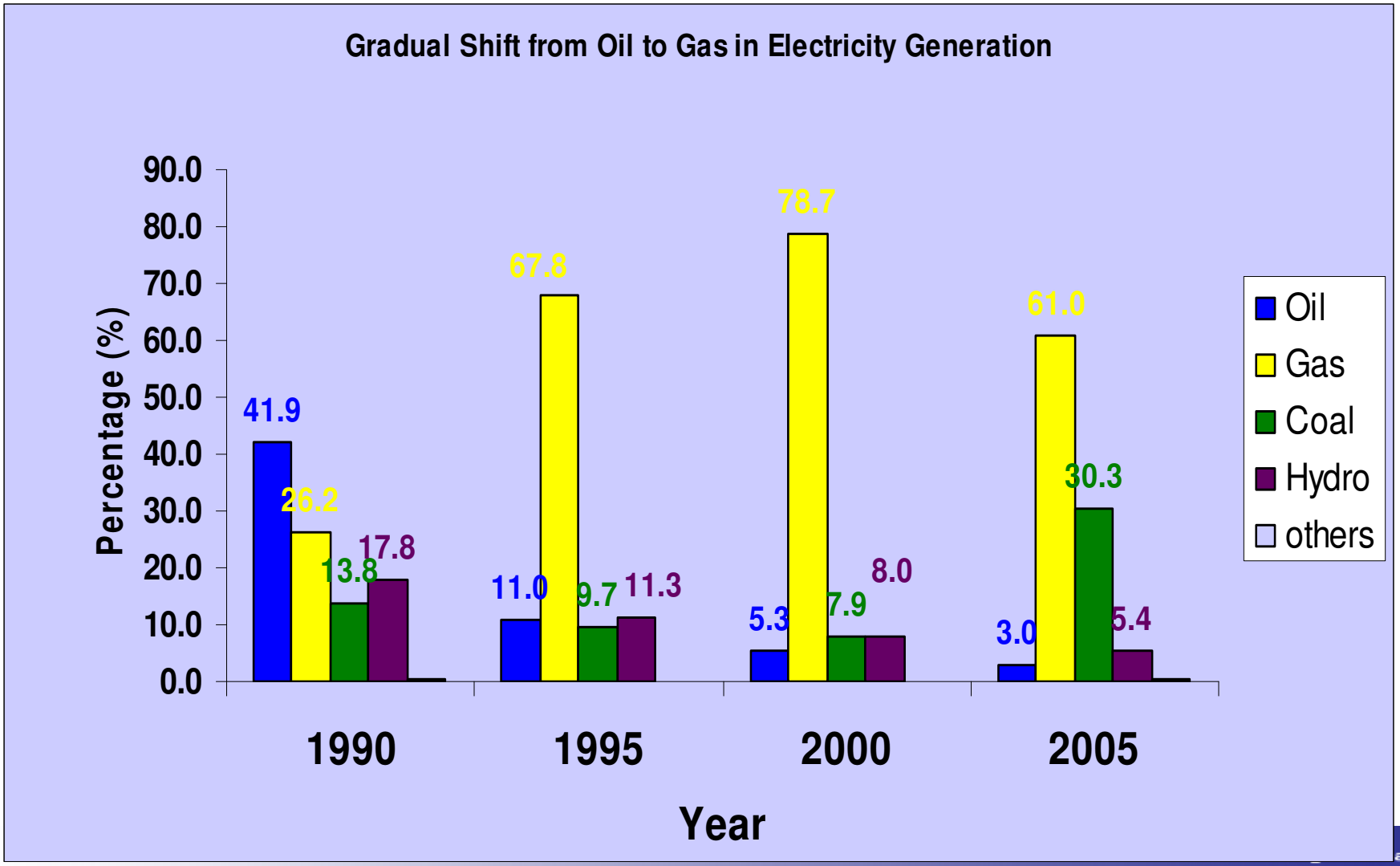
4. National Depletion Policy 1980 Safeguarding the depleting of oil reserves

5. Four-fuel Diversification Policy 1981
- To ensure reliability and security of fuel supply and to reduce the dependence on oil in energy consumption

6. RE as 5th Fuel 2001

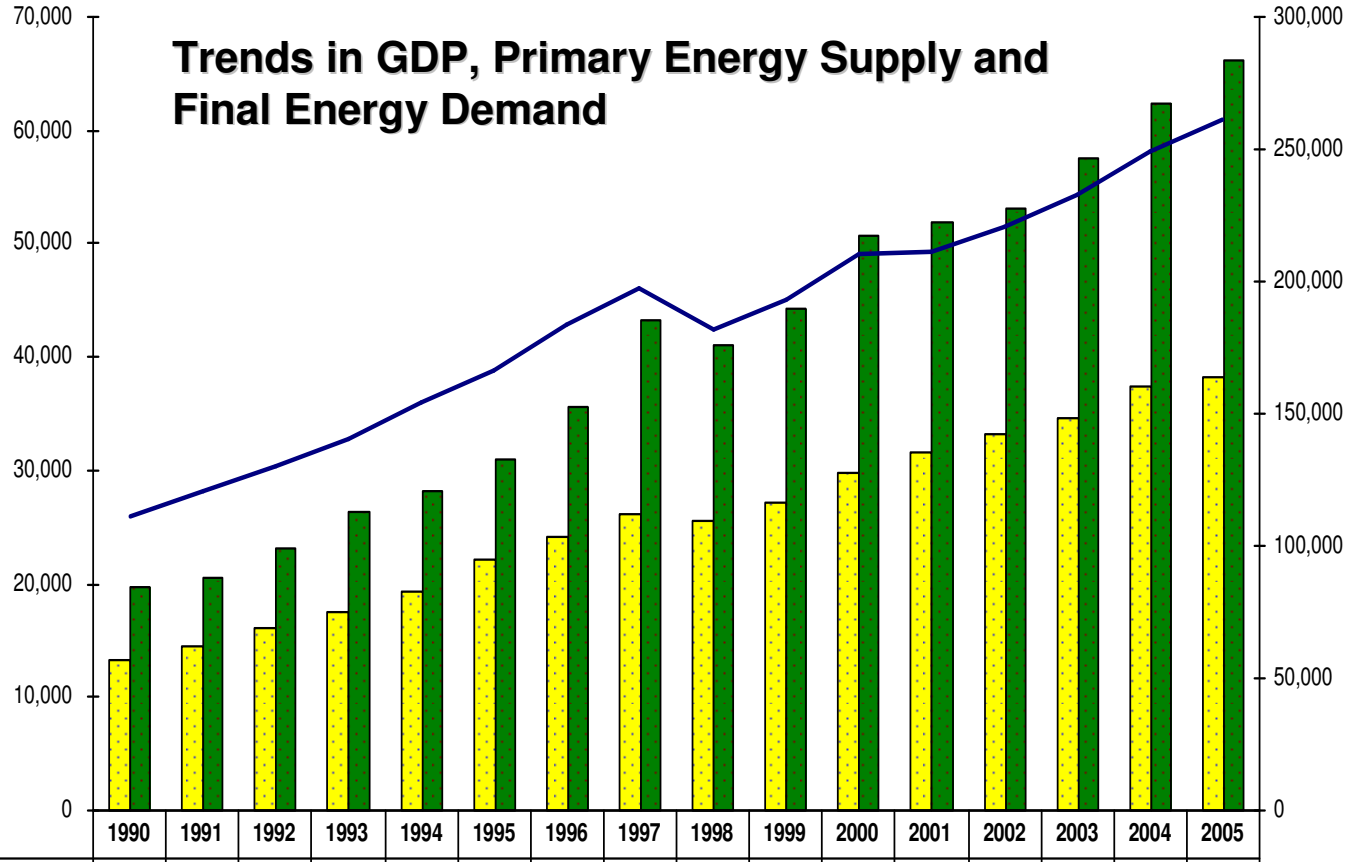
# FUEL MIX IN ELECTRICITY GENERATION 1990 - 2005

Malaysia Energy Centre



# KEY ECONOMIC AND ENERGY DATA

Malaysia Energy Centre




| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Final Energy Demand (ktoe) | 13,217 | 14,560 | 16,185 | 17,468 | 19,287 | 22,164 | 24,167 | 26,168 | 25,558 | 27,228 | 29,699 | 31,515 | 33,290 | 34,586 | 37,322 | 38,285 |
| Primary Energy Supply(ktoe) | 19,661 | 20,611 | 23,059 | 26,294 | 28,247 | 30,893 | 35,612 | 43,172 | 40,996 | 44,217 | 50,710 | 51,979 | 53,196 | 57,565 | 62,358 | 66,212 |
| GDP (RM million) | 111,061 | 120,609 | 130,012 | 140,864 | 153,881 | 166,625 | 183,292 | 197,120 | 182,237 | 193,422 | 210,557 | 211,227 | 220,422 | 232,359 | 248,954 | 261,395 |

# 5 FUEL DIVERSIFICATION POLICY

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- To encourage the utilization of renewable resources such as biomass, solar, mini hydro, etc. as additional sources of energy / electricity generation;
- To reduce over dependence on conventional source of energy i.e. oil, gas, hydro and coal;
- To contribute towards the preservation of the environment.

# RE INITIATIVES

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## Small Renewable Energy Power Programme (SREP)

- Introduced in 2001
- Approved projects with license: 6

| No | Source of RE | Approved application | Total grid connected capacity (MW) | Percentage (%) |
|---|---|---|---|---|
| 1 | Biomass | 20 | 140.1 | 59% |
| 2 | Landfill gas | 4 | 8.7 | 4% |
| 3 | Mini hydro | 24 | 89.7 | 38% |
| | | 48 | 238.5 | 100% |

- Projects Implemented : 2
- Grid-connected Capacity : 12 MW

**Note: As at July 2006**

# Two successful SREP Projects


## TNB Jana Landfill at Puchong

- 2 MW installed capacity
- Fuelled by biogas captured from the landfill area
- Commissioned in April 2004


## TSH Bio Energy Project at Kunak

- Located in Kunak, Sabah.
- Generation capacity of 14MW (10MW sold to utility)
- Fuelled by oil palm residues (EFB, shells, fibres)
- Commissioned in December 2004

# GHG EMISSIONS - ENERGY SECTOR

Malaysia Energy Centre

| Activity | Unit | 1994 | 2000 | 2001 |
|---|---|---|---|---|
| Energy Demand | ktoe | 19,287 | 29,699 | 31,515 |
| $CO_2$ emission | kilotonne $CO_2$ | 84,415 | 133,529 | 150,946 |
| $CO_2$ emission per capita | tonne/capita | 4.21 | 5.70 | 6.29 |

# Energy Efficiency Initiatives

Malaysia Energy Centre

- ✓ **Preparation of Legislative Framework**
  - Final Draft of Efficient Management of Electrical Energy Regulations
  - Inclusion of EE elements in Uniform Building By-Laws
  - Guidelines for EE Equipments drafted
- ✓ **Fiscal Incentives Given to Companies Dealing with EE since 2001**
  - Pioneer Status, Investment Tax Allowance, Import Duty & Sales Tax Exemption

# EE Initiatives ...

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## Malaysian Industrial Energy Efficiency Improvement Project (MIEEIP)

- To remove barriers to industrial EE
- Focus on 8 energy-intensive sub-sectors
- Identified potential energy savings of 5-34% for the sub-sectors

## Low-Energy Office (LEO)

- The Ministry of Energy, Water and Communications office building
- Showcase of EE in Buildings
- 50% of energy saving compared to building without EE

## Demand-Side Management Programme

Labelling for Industrial Motors and Household Appliances

A&P Campaigns for High-Efficiency Motors

# Challenges and/or barriers to RE …

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## Finance

- The size of RE projects may not be attractive enough for large developers to be involved
- Local banks are not prepared to adopt Project Finance mechanism without the standard guarantees or collaterals
- RE technologies are considered risky by financial institutions, due to general lack of confidence, lack of successful examples & unfamiliarity with the technologies
- financial institutions lack experience in RE project evaluation
  - developers lack the skill in financial structuring & packaging

# Challenges/barriers to RE …

- Fuel security of fuel/feedstock; adequate and long-term supply from reliable suppliers

- Development of RE projects has long gestation period and requires a lot of efforts
  - due to the requirements related to permits and consents as well as the lengthy negotiation process

# RE/EE Incentives

- Clean Development Mechanism
  - 24 projects received host country approval
  - 16 projects are registered with CDM Executive Board

# BUDGET 2008 INCENTIVES

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- Companies providing energy conservation services will get an additional 10 years' pioneer status
- Investment tax allowance will be increased to 100 percent of qualifying capital expenditure incurred within 5 years
- Income derived from CERs will have tax exemption effective from year of assessment of 2008 until year of assessment 2010 (?)

# THE WAY FORWARD

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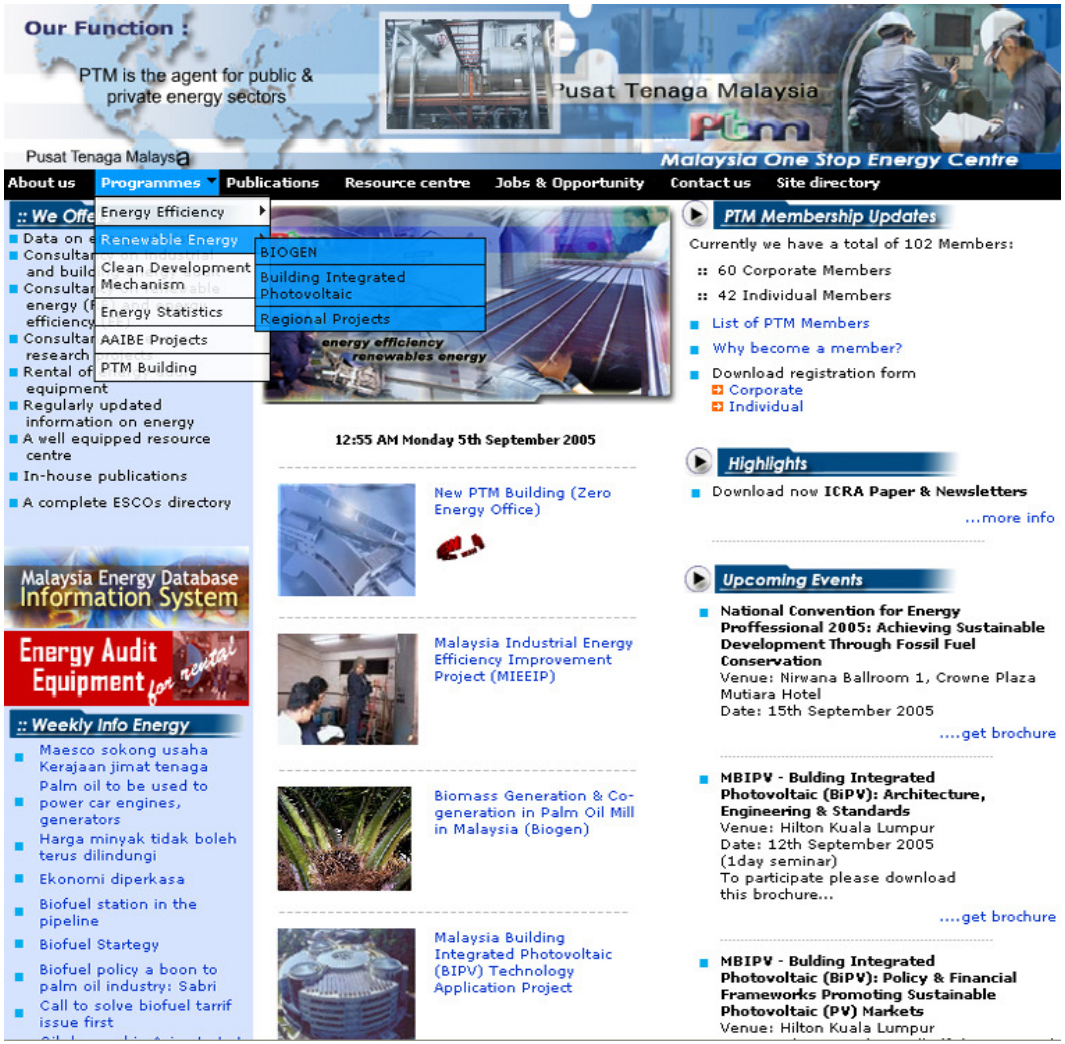
- **comprehensive policy, action plans and programmes for renewable energy and energy efficiency must be developed**

- **development and support of new and innovative financing mechanisms for RE and EE projects with financial institutions**

# *Thank You*

Malaysia Energy Centre

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