



Malaysian Energy Situation

Seminar on “COGEN 3: A Business Facilitator”
Grand Bluewave Hotel – Shah Alam, Malaysia
2 – 3 September 2002

Hamdan Mokhtar
Country Coordinating Team Malaysia



National Energy Policy Objectives:

- **SUPPLY OBJECTIVE**
To provide adequate and secure energy supply
- **UTILISATION OBJECTIVE**
To promote and encourage efficient utilisation
- **ENVIRONMENTAL OBJECTIVE**
To ensure the minimum impacts on the environmental



Primary Commercial Energy Supply Source (%)

Source	1995	2000	2005
Crude Oil & Petroleum Products	54.3	53.1	50.8
Natural Gas	35.5	37.1	39.9
Hydro	5.0	4.4	3.4
Coal & Coke	5.2	5.4	5.9
Total (PJ)	1294	1674	2375



Final Commercial Energy Demand by Source (%)

Source	1995	2000	2005
Petroleum Products	72.8	68.9	67
Natural Gas	8.8	10.3	10.9
Electrical	15.2	17.6	18.8
Coal & Coke	3.2	3.2	3.3
Total (PJ)	928	1168	1699.8
Per capita Consumption	44.3	50.1	66.4



Final Commercial Energy Demand by Sector (%)

Source	1995	2000	2005
Industrial	36.4	37.1	38.2
Transport	35.3	36.2	37.8
Residential			
Commercial	12.8	12.7	12.5
Agricultural Forestry	2.9	1.8	1.8
Non-Energy	13.5	12.2	9.8
Total(PJ)	92.8	1167	1699.8



Electricity Generation Mix(1995-2006) (%)

Fuel	1995	2000	2005
Oil	36.4	37.1	38.2
Coal	35.3	36.2	37.8
Gas	12.8	12.7	12.5
Hydro	12.8	12.7	12.5
Other	2.9	1.8	1.8
Total generation (GWh)	13.5	12.2	9.8
Peak Demand MW)	7212	10673	16384



Power Generation Producer

- IPP's : 37%
- TNB Generation : 63%



New Energy Policy – 5th Fuel Policy

“To supplement the conventional supply of energy, new sources such as renewable energy will be encouraged. In this regard, the fuel diversification policy which comprises oil, gas, hydro and coal will be extended to include renewable energy as the fifth fuel, particularly biomass, biogas, municipal waste, solar and mini-hydro. Of these, biomass resources such as oil palm and wood waste as well as rice husks, will be used on a wider basis mainly for electricity generation. Other potential sources of energy will include palm diesel and hydrogen fuel.”



Current Biomass Utilisation in POM

- ✓ Fibre and Shell
- ✓ Generating Steam and Power for own consumption
- ✓ Conventional Technology-Fixed Grate
- ✓ Low efficiency
- ✓ Isolated /Off Grid System
- ✓ Waste disposal



Propose Biomass Utilisation in POM

- ✓ Fibre, Shell and Empty Fruit Bunches
- ✓ Grid Connected System
- ✓ Higher Efficiency System
- ✓ Steam/Heat can be supply to potential customer
- ✓ Waste disposal & produce value added product



Fresh Fruit Bunchess Production (Million Tonnes)

Year	FFB Production
1975	7.2235
1980	14.5605
1985	22.4949
1990	32.7036
1995	42.0688
2001	61.5220



Generation of biomass residues from POM (2000)

Type of residues	Dry weight (Million Tonnes)	Generation Capacity (MW)
Shell	2.02	411
Fibres	3.09	507
EFB	3.94	315
Total	8.15	1233



Number of Mills and Capacities 2001

	In Operation	UCP	Total
Peninsular Malaysia	244	13	258
Sabah	89	20	109
Sarawak	19	12	31
Capacity -MT/yr	67.556	6.410	75.805
CPO Production MT/yr	11.804		112



Other Biomass Residues

- **Paddy : 2.12 million tonnes**
- **Wood waste : 9.07 million m3**



Small Renewable Energy Power Programme (SREP)

- ✓ Launched by Minister MECM on May 11 2001
- ✓ Fuel cover biomass, biogas, minihydro, solar & wind
- ✓ Maximum capacity connected to the grid 10MW
- ✓ Grid connected



SREP objectives:

- ✓ **To promote and encourage the use of renewable energy for grid connected power generation system**
- ✓ **To reduce the dependency on oil**
- ✓ **To minimize the negative impact on the environment**



Status of approved SREP as reported by Energy Commission

Type of Renewable Energy	No of approved application	Capacity MW
Biomass	14	105
Biogass	2	5
Minihydro	1	2
Wind & Solar	0	0
Total	17	112



Natural Gas Utilisation

- ✓ **IPP's in power sector**
- ✓ **Petrochemical**
- ✓ **GDC for commercial**
- ✓ **Industrial Sector**
- ✓ **Vehicles**
- ✓ **Residential**



Renewable Energy Incentives

Introduction:

Companies intending to generate energy using biomass are eligible to apply for Pioneer Status for 5 years or Investment Tax Allowance of 60% on qualifying capital expenditure incurred within a period of 5 years to be utilized against 70% of the statutory income for each year of assessment. This incentive is applicable for applications received from 28 October 2000 until 31 December 2002, and the project must be implemented within 1 year of incentive approval.

Criteria for eligibility:

- ❖ The company must be locally incorporated under the Companies Act 1965
- ❖ Biomass sources



Qualifying Capital Expenditure

Qualifying Capital Expenditure:

For Investment Tax Allowance Incentive, qualifying capital expenditure means capital expenditure incurred on building, plant and machinery used for generation of energy using biomass.

Procedure for Applying Tax Incentive:

Companies intending to generate energy using biomass are required to submit their applications using Form RE (2001)



Biomass Resources

- ✓ Palm Oil Mill Waste
- ✓ Rice Mill Waste
- ✓ Sugar Cane Mill waste
- ✓ Timber or Sawmill Waste
- ✓ Paper Recycling Mill Waste
- ✓ Municipal Waste
- ✓ Biogas